

Market Studies, LLC v. Technical Analysis, Inc., No. CV 2011-01895-JAT-PHX (D. Ariz.)

Index of Exhibits to
Defendant Technical Analysis, Inc.'s Motion for Judgment on the Pleadings

Exhibit A Andrew Coles, PhD, "TD Sequential and Ermanometry for Intraday Traders," *Technical Analysis of Stocks & Commodities*, vol. 29, no. 10, at 12-22 (Sept. 2011).

Exhibit B "Traders' Tips," *Technical Analysis of Stocks & Commodities*, vol. 29, no. 10, at 64-70 (Sept. 2011).

Exhibit C Online version of "Traders' Tips," *Technical Analysis of Stocks & Commodities*, vol. 29, no. 10, at 64-70 (Sept. 2011), at http://www.traders.com/Documentation/FEEDbk_docs/2011/09/TradersTips.html

Exhibit D Masthead of *Technical Analysis of Stocks & Commodities*, vol. 29, no. 10 (Sept. 2011).

Exhibit A

Exhibit A

More Time-Based Trading Techniques

TD Sequential And Ermanometry For Intraday Traders



You can automate time-based techniques to apply to intraday charts. In the first part of this series, we discussed Fibonacci's bar-counting technique and the Lucas number series. This time, we will examine two others: the TD Sequential and Ermanometry.

by Andrew Coles, PhD

Time-based techniques are effective and can be applied to intraday trading, but unless they are automated, they require a great deal of tending and tracking on the part of the trader. The Fibonacci and Lucas techniques, which we explored in the previous issue, can be mechanized (as seen in that article), but they will not continue to plot without further input. This is also true of William Erman's Ermanometry, which we will look at later in this article. Meanwhile, Thomas DeMark's TD Sequential can be automated without requiring further input, as we will see here.

TD SEQUENTIAL

In his book *Day Trading Options* as well as in various articles, Thomas DeMark demonstrated that his TD Sequential and TD Combo bar counting techniques are equally effective on intraday charts. However, there are many trading platforms that have not coded the indicators, and their manual calculation still presents a challenge for a busy daytrader.

It's beyond the scope of this article to discuss DeMark's two indicators in detail. Suffice it to say that TD Combo anticipates price exhaustion within trends, as does the countdown component of the TD Sequential. The setup component of TD Sequential focuses on the momentum component to define price ranges. Thus, if a directional move continues after the momentum component is complete, TD Countdown and TD Combo can be applied to identify areas of trend exhaustion.

However, as Jason Perl stresses in his recent book about DeMark's indicators, the momentum component is still important, since how the market responds to a setup determines whether it is range-bound. Each time price completes a setup, the price extremes are identified by a support and resistance line known as the TD Setup Trend (TdST). If price

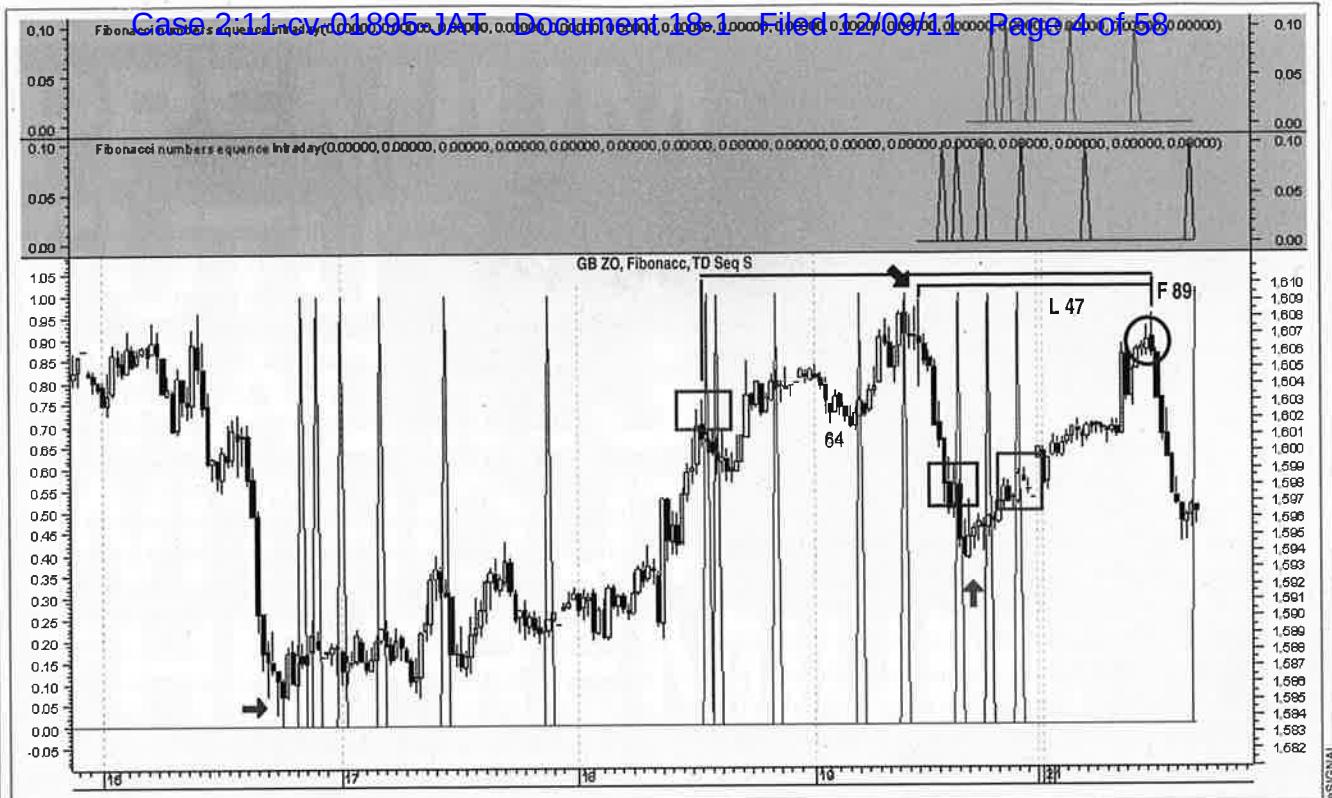


FIGURE 1: 30-MINUTE CHART OF BRITISH POUND DECEMBER 2010 FUTURES. Here you see a red Fibonacci series and DeMark's setup in blue. The upper panes contain further Fibonacci series launched from more recent turning points.

fails to break through the TDST, there is an opportunity to take a contrary position insofar as the market doesn't have the momentum to start the countdown phase — that is, to break through the TDST into a new distinct trend. This means that a mechanized version of the setup is capable of creating many interesting signals of its own.

A TD Sequential buy setup adheres to the following two conditions:

- 1 A bearish price flip whereby price must close higher than the close four bars earlier, followed by a close less than the close four bars earlier
- 2 Nine consecutive closes, each one less than the corresponding close four bars earlier (where the bar on which the bearish price flip occurs qualifies as bar of the buy setup).

For a sell setup, these conditions are reversed.

These two conditions can be programmed into MetaStock and the result is a mechanized version of the setup component of the TD Sequential. See sidebar, "MetaStock Code For Intraday Application Of TD Setup."

Figure 1 is a 30-minute chart of the British pound December 2010 futures. In the main pane, there is a red Fibonacci sequence running from the low at the red arrow, and the blue spikes further along are the TD Sequential Setup. Since the countdown and combo aspects aren't coded, other potential signals are overlooked; nonetheless, all but the penultimate blue spike capture a market turning point.

The middle pane shows another Fibonacci sequence launched from the dark red arrow and the top pane shows a

The setup component of TD Sequential focuses on the momentum component to define price ranges.

third Fibonacci sequence launched from the green arrow. As the chart is being printed, the dark red sequence has just fired off on the 55th bar as the sharp downtrend halts on a hammer candlestick; at the same time, the TD setup is in the process of firing off. The black rectangles indicate areas of overlap between the TD Countdown and the Fibonacci series. The combined red series plus the TD setup produce some impressive signals, including the two largest moves of the day in the case of the TD setup.

METASTOCK CODE FOR INTRADAY APPLICATION OF THE TD SETUP

```
x:=Input("Price Field, 1=O,2=H,3=L,4=C,5=V",1,5,4);
y:=If(x=1,O,If(x=2,H,If(x=3,L,If(x=4,L,If(x=5,V,0)))));
```

{BuySetup}

```
Sum(y<Ref(y,-4),9)=9 AND {initialization} Ref(y,-9)>Ref(y,-13);
```

{SellSetup}

```
Sum(y>Ref(y,-4),9)=9 AND {initialization} Ref(y,-9)<Ref(y,-13);
```

There is no Lucas series in this chart because it is intended to show how multiple Fibonacci series can be plotted from multiple turning points as the market moves forward. DeMark's indicators are easier to plot because they do not require a starting point to be input by the trader. Because of this, DeMark's indicators would be left running in the background, whereas it is up to the trader's discretion from which points Fibonacci and Lucas series should be launched. As I mentioned in part 1, you can drop down to lower-level charts such as the five-minute to work with the consequences of these signals. But the need to find higher time frame charts is less important when using the TD setup.

If you are wondering about the major swing high highlighted by the magenta circle, note that it was captured by both a Fibonacci series and a Lucas series. However, neither was plotted on this chart and its identification was retrospective. Thus, this chart highlights once again that while most pivots do seem to be genuinely captured by Fibonacci and/or Lucas series, it is impossible to launch a series from every pivot in real time, and consequently, some major price turning points will only be identified retrospectively (however, this doesn't apply to the DeMark indicators). This highlights again the critical need for price-based technical analysis.



ERMANOMETRY

Our fourth and final intraday mechanized system is based on William Erman's Ermanometry. Erman's work on market timing has been published in this magazine, and here I follow his first STOCKS & COMMODITIES article from 1999 to create this mechanized intraday timing system. See the sidebar "MetaStock Code For Intraday Application of Ermanometry."

In that article, Erman stated that the largest time unit for his approach is the trading day, while stressing that a unit as small as 15 minutes could also be used. With easier accessibility now to intraday charts and with a mechanized version of this timing system, I have found that time units as low as one-minute bars can be used, which is to be expected, given the success of other fractal approaches in accessing very small time frames such as in Elliott wave theory and in MIDAS.

Ermanometry is based on the idea that financial markets exhibit multiple and concurrent orderly growth patterns in price and time, with time being the dominant influence. A given growth pattern is founded upon a ratio of expansion

METASTOCK CODE FOR INTRADAY APPLICATION OF ERMANOMETRY

```

sm:=Input("starting month",1,12,1);
sd:=Input("starting day of month",1,31,1);
sh:=Input("hour", 1,24,1);
se:=Input("minute",0,60,0);

start:= sd=DayOfMonth() AND sm=Month() AND 2010
AND sh=Hour() AND se=Minute();

EF:=Input("seed segment EF (first wave)",1,900,10)
{first leg or movement};
DE:=Input("seed segment DE (second wave)",1,900,10)
{second leg or movement};

Ratio:=EF/DE;

Inverseratio:= 1/(EF/DE);

x:=BarsSince(start);

CD:=DE*Inverseratio;
BC:=CD*Inverseratio;
AB:=BC*Inverseratio;
FG:= EF*Ratio;
GH:=FG*Ratio;
HI:=GH*Ratio;
IJ:=HI*Ratio;

FH:= Sqrt(Power(FG,2)+Power(GH,2));
{start of calculations}

If(x=Int(FH),1,0); {Erman}
If(x=Int(GH),1,0); {Erman}
If(x=Int(HI),1,0); {Erman}
If(x=Int(IJ),1,0); {Erman}
If(x=Int(DE+EF+CD),1,0); {Erman}
If(x=Int(GH+HI+IJ),1,0); {Erman}
If(x=Int(CD+DE+EF+FG+GH+HI),1,0); {Erman}
If(x=Int(EF+FG+GH),1,0); {Erman}
If(x=Int(CD+DE+EF+FG+GH),1,0); {Erman}
If(x=Int(CD+DE+EF+FG+GH+HI),1,0); {Erman}
If(x=Int(GH+IJ+CD+AB+EF),1,0); {Erman}
FH:= Sqrt(Power(FG,2)+Power(GH,2));

If(x=Int(FH+FG+GH),1,0); {Coles}
If(x=Int(AB+BC+CD+DE),1,0); {Coles}
If(x=Int(AB+BC+CD+DE+GH),1,0); {Coles}
If(x=Int(FG+GH),1,0); {Coles}
If(x=Int(GH+HI),1,0); {Coles}
If(x=Int(FG+BC+CD),1,0); {Coles}
If(x=Int(FG+BC+CD+DE),1,0); {Coles}
If(x=Int(CD+BC),1,0); {Coles}
If(x=Int(DE+BC),1,0); {Coles}
If(x=Int(Sqrt(Power(CD,2)+Power(DE,2))+CD+DE),1,0);
{Coles}
If(x=Int(Sqrt(Power(EF,2)+Power(FG,2))+EF+FG),1,0);
{Coles}

```

that never changes; this can be found in virtue of the methodology outlined under the subhead "Applying Ermanometry." This ratio, or growth pattern, can be understood in terms of the log spiral, whose relevant characteristic is that its proportionality remains constant, whether it is increasing or decreasing in size.

Log spirals are common in nature, with one of the best-known examples being the nautilus shell. A fixed ratio (growth pattern) is also a feature of rectangular spirals, whose parameters are coincident with their log spiral counterparts. Consequently, Ermanometry shows that many important market moves share the properties of rectangular spirals, whose linear properties can be exploited mathematically to identify important market turning points in the constant ratio of expansion.

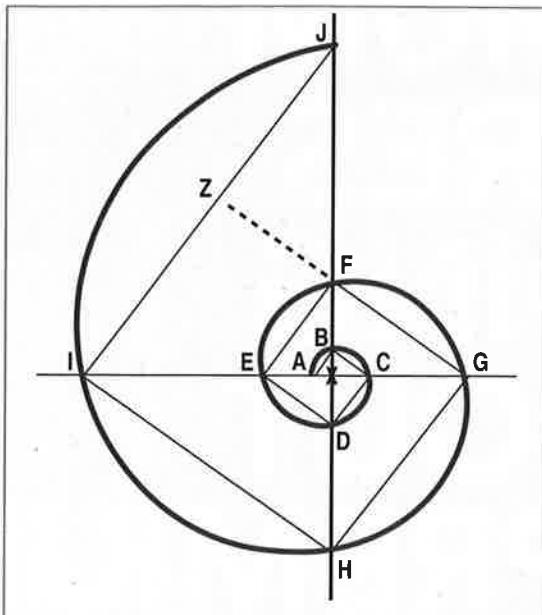


FIGURE 2: GROWTH OF LOG SPIRAL (RED) AND LINEAR RECTANGULAR SPIRAL (POINTS A TO J). The geometrical relationships involve various mathematical operations such as addition in relation to the various segments and axes in the rectangular spiral.

Ermanometry is based on the idea that financial markets exhibit multiple and concurrent orderly growth patterns in price and time.

A central theme of Erman's article is to show that the ratio influencing two important market moves between 1974 and 1978 has influenced the growth pattern of many subsequent moves up to 1998 in both the Dow Jones Industrial Average (DJIA) and Standard & Poor's 500. This is shown by taking various geometrical relationships from the rectangular spiral generated as a result of the growth ratio

determined by the moves (seed segments) between 1974 and 1978 and then projecting them onto the market. This technique will be applied intraday under the next subhead.

Figure 2 illustrates the relationship between the constant growth of a log spiral highlighted in red and a linear rectangular spiral consisting of points A to J. The various geometrical relationships involve mathematical operations such as addition in relation to the segments and axes in the rectangular spiral. (Axes are the vertical and horizontal segments. For example, the axis EG is the hypotenuse of the triangle EFG consisting of two additional segments, EF and FG.)

Erman comments further on the nature of the rectangular spiral:

... Extension of any line in the series A-J, past the point at which it meets an adjacent line in the series to the point at which it intersects another line in the series, creates a rectangle. For example, if line GF is extended to intersect line IJ at point Z, then points Z, I, H, and G are the four corners of a rectangle. The axes segments have the same constant growth ratio as the spirals. Therefore, the diagram could be turned inside out using the axes segments as the rectangular spiral. The values for the previous rectangular spiral segments would then become axes segments. The shape of the log spiral would remain constant.



APPLYING ERMANOMETRY

With this introduction, let us look at the technique involved in establishing the fixed ratio (growth pattern) underlying a given price move. The first thing to do is to identify the start

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of a new trend whose growth pattern will be of interest. Figure 3 is a 60-minute chart of German Bund December 2010 futures with line (1) highlighting the first downside move off a significant swing high at the black arrow and line (2) highlighting the correction before the downside resumes. For the moment, we will ignore the dotted line. As we can see, the signals capture many important turning points at the green and blue pivots, especially where they cluster.

The first downtrend segment (1) consists of 48 bars, while the corrective segment (2) consists of 40 bars. We use these two numbers — the seed segments EF and DE in Figure 2, respectively — to find the ratio:

$$48/40 = 1.2$$

The inverse ratio must also be found so that the spiral may wind counterclockwise as well as clockwise:

$$1/1.2 = 0.8333$$

From these ratios, we can derive the remainder of the segments on the rectangular spiral:

$$AB = 23$$

$$BC = 28$$

$$CD = 33$$

$$DE = 40 \text{ (seed segment)}$$

$$EF = 48 \text{ (seed segment)}$$

$$FG = 58$$

$$GH = 69$$

$$HI = 83$$

$$IJ = 99$$

We could continue increasing the segments, but IJ is the largest segment included in Erman's article, and adding more would result in exceedingly large time gaps. Fortunately, all of this plus the calculations here can be programmed into MetaStock. Again, all a trader needs to do is input the time and number of bars of the two seed segments.

Before moving on to the calculations, however, we need to make several important observations:

- Erman occasionally varies the derivation of the seed segments. In his article, his first variation involved seed segment (2) consisting of seed segment (1) plus the original seed segment (2) (see dotted line in Figure 3). In this case, the result is 48 bars and 88 bars, producing a ratio of 1.8333 and an inverse ratio of 0.5455. Seed segment (1) would become EF and seed segment (2) FG and the calculations would adjust accordingly. Erman will also sometimes take the square root of a given growth ratio (for example, $\sqrt{1.2} = 1.0954$) and then recalculate the segments. Space considerations preclude me from experimenting with these options.
- As regards the launch point, Erman writes that "all seed points are valid points from which to project forward. ... When a projected point does in fact become an important pivot, the new pivot is considered part of the

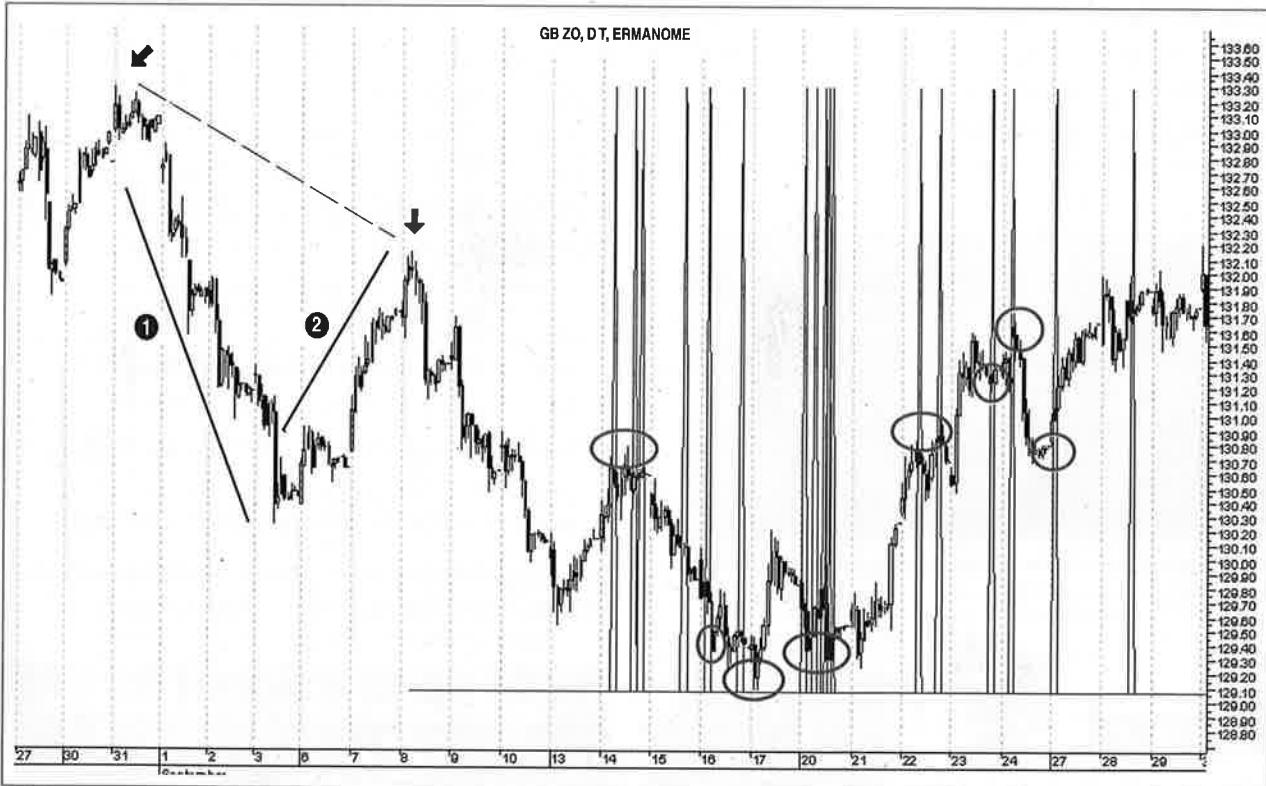


FIGURE 3: 60-MINUTE CHART OF GERMAN BUND DECEMBER 2010 FUTURES. Here you see a rectangular spiral launched from the red arrow.

Erman's techniques in the 1999 article based on the 1974 and 1978 seed segments

1. FG	2. GH	3. FH (derived via Pythagoras's theorem)
4. HI	3. IJ	6. DE+EF+CD
8. GH+HI+IJ	9. CD+DE+EF+FG+GH+HI	10. EF+FG+GH
11. CD+DE+EF+FG+GH	12. GH+IJ+CD+AB+EF	

A few additions by Coles

1. FH+FG+GH	2. AB+BC+CD+DE	3. AB+BC+CD+DE+GH
4. FG+GH	5. GH+HI	6. FG+BC+CD
7. FG+BC+CD+DE	8. CD+BC	9. DE+BC
10. CD+DE+hypotenuse (EC)	11. EF+FG+hypotenuse (EG)	

FIGURE 4: ERMAN'S TECHNIQUES PLUS COLES'S ADDITIONS. Here you see Erman's 1974 and 1978 seed segments plus a few added by Coles.

■ It is interesting to note that the time space between signals is never the same (the way it is in the Fibonacci and Lucas series), since the time space between each signal depends on the ratio. For example, the ratio 1.8333 is 30% larger than the ratio 1.2 and causes the spiral to expand and decrease more quickly. We can see the clustering of many signals in Figure 3. The same clusters will not be present on other charts as a result of the difference in the ratio.

■ Ermanometry allows a variance of +2/-2 bars either side of a signal.

spiral family and becomes a valid point from which to project forward." In Figure 3 I started the projection from the end of the second seed segment at the red arrow. It results in a cluster of signals at the first green circle and another cluster at the second blue circle, marking the first pullback in the start of an uptrend that lasts several days (the actual bottom is three bars away from a signal).

With the segments calculated and various axes derived from them using Pythagoras's theorem, we can now apply the spiral to this trend using Erman's techniques, though it is important to bear in mind that he chose them because he was revealing how they were linked to the price movements between 1974 and 1978 (his two seed segments) and 1998. For the purpose of this article, I am going to add a few more

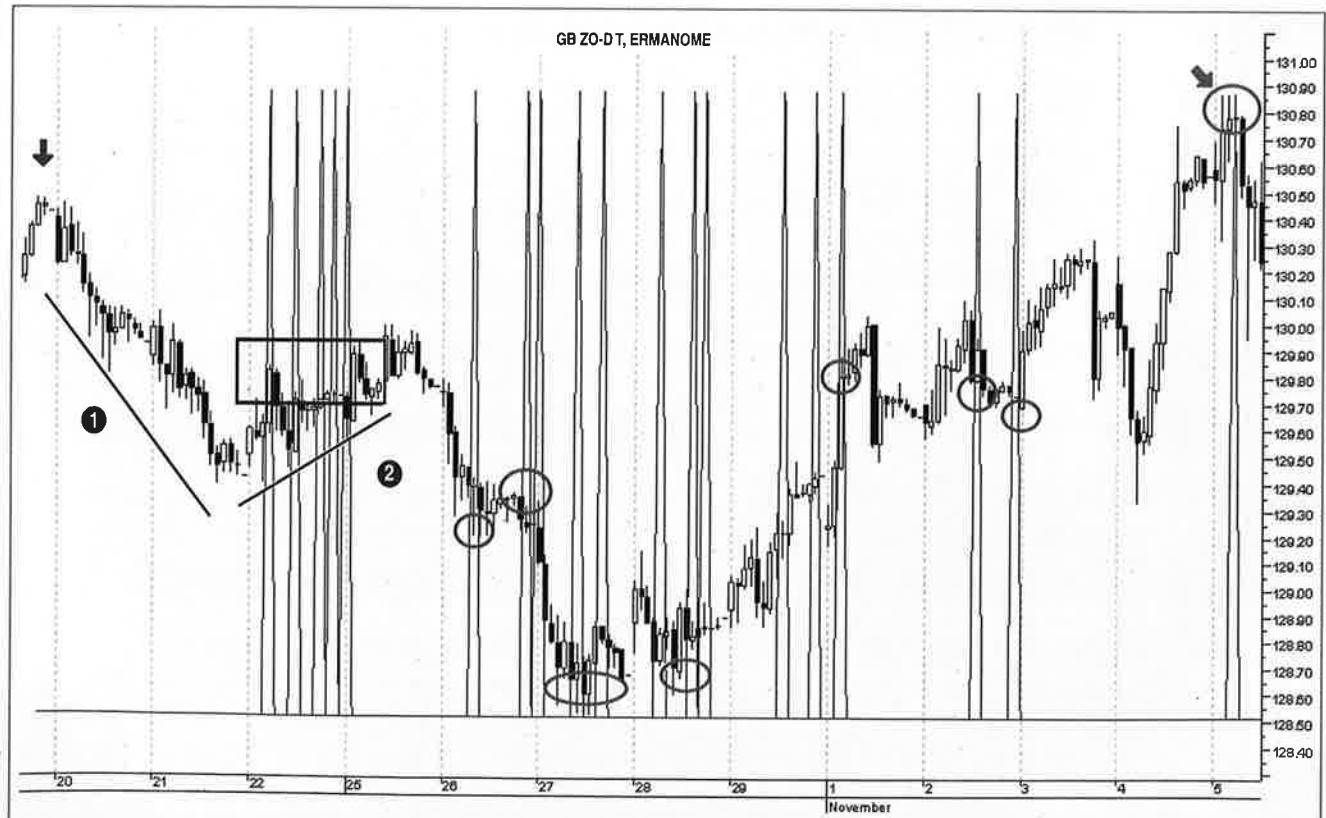


FIGURE 5: SAME 60-MINUTE CHART OF GERMAN BUND DECEMBER 2010 FUTURES MOVED FORWARD. Here the spiral is launched from the start of segment 1 instead of segment 2. The pivot at the green arrow is part of this spiral family and hence a new place from which to launch another spiral.

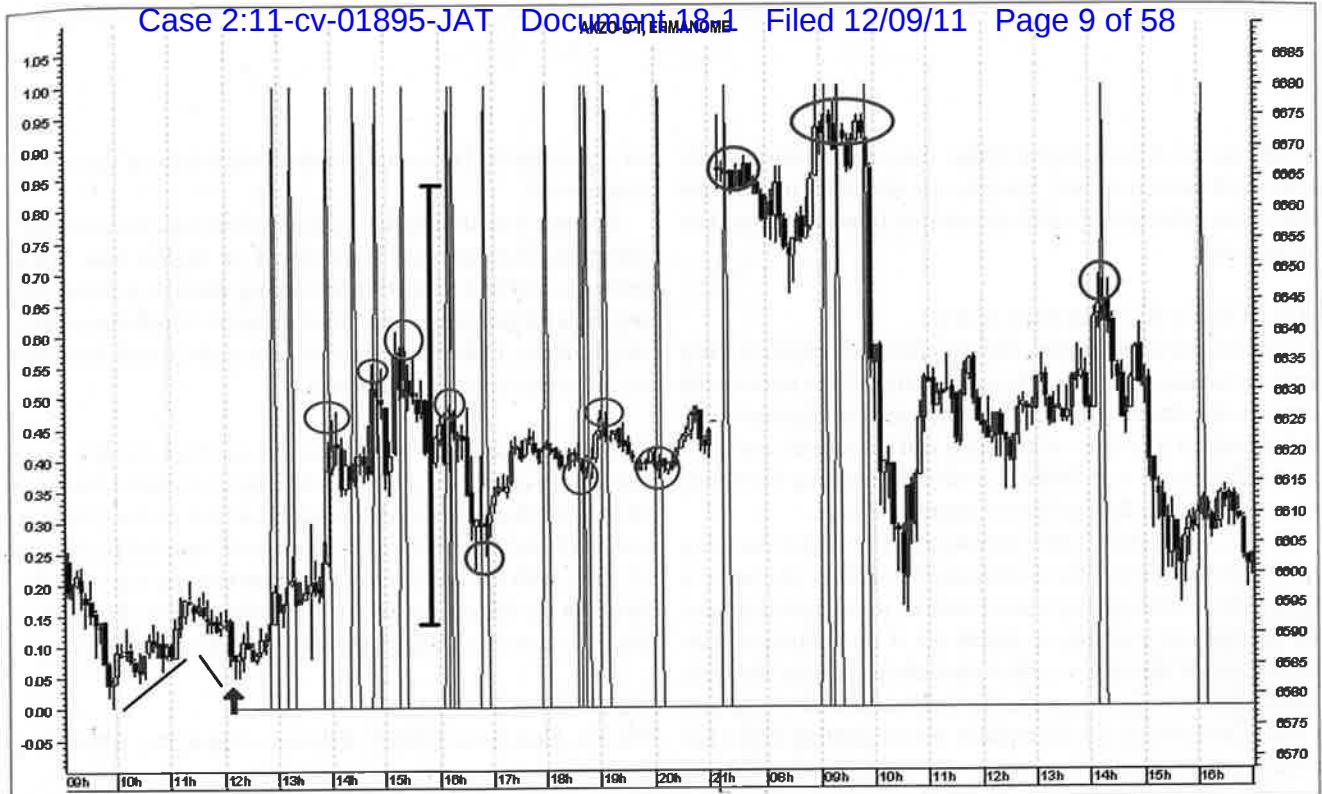


FIGURE 6: FIVE-MINUTE CHART OF THE GERMAN DAX DECEMBER 2010 FUTURES. On this chart you see the confirmation of a rectangular spiral by the time price reaches the vertical black line.

techniques. Over the years, Erman has researched dozens of sophisticated geometrical techniques, and readers should consult his book *Ermanometry* via his website. Again, all of these calculations can be programmed into MetaStock.

The two lists in Figure 4 contain Erman's techniques first and then ones I have added. More permutations could be included, but these are more than enough for this article.

Figure 5 is another 60-minute chart of the Bund moved forward, this time with the spiral launched from the start of segment (1) (red arrow) instead of the end of segment (2). The cluster of signals in the rectangle is redundant, since it is falling within segment (2). Green circles emphasize the main swing low and high separated by multiday price moves. The green arrow on the right indicates a projected point that now becomes a part of the spiral family, and hence a new point from which to launch a new spiral.

One concern I have with rectangular spirals is that several variables are associated with their launch, including:

- The choice of the two seed segments
- The actual launch point
- Whether the growth ratio should be further adjusted.

This raises the additional concern over whether the correct value for each variable has been chosen, an issue that is much easier to resolve when fitting rectangular spirals retrospectively as in Erman's article. I address this by confirming a spiral's ability to catch early subsequent pivots before making a commitment to it. For example, Figure 6 is a five-minute chart of the DAX December 2010 futures with a spiral launched from the red arrow using the seed segments highlighted. It catches

three turns before the vertical black line, thus confirming that the values of the variables chosen are valid. A five-minute chart

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would not be chosen over a higher time frame chart for the reasons discussed earlier; I merely use this chart to illustrate that rectangular spirals do work on time frames smaller than 15 minutes.

AN EFFECTIVE COMBINATION

There is no question that time-based systems are effective when applied intraday, provided they are automated to remove the need to calculate them manually. They can easily be combined, as Greenblatt has done with Lucas and Fibonacci, and as it is possible to do with DeMark and Ermanometry. However, this conclusion comes with two major provisos.

First, a time-based system should never be used in isolation from price-based technical analysis. The role of the latter is to provide a clear perception of current trend direction plus its strength (or tendency to break out if the market is consolidating). Critically, a price-based focus is also the only way of identifying setups and the only means of confirming them. Candlesticks (or an equally robust plotting style) are required for the latter at a bare minimum, with additional factors such as trendline analysis and moving averages also an essential means of confirming setups. Daytraders can also apply techniques such as floor trader pivots and Market Profile. Price-based analysis is particularly important in light of the fact that time-based signals will always be trend-following

or contrarian and it is vital to know which side of the market you are on.

Second, time-based systems of the type we have been surveying here are easily displayed on higher time frame intraday charts in relation to the trading chart time frame (for example, 60 minutes versus five minutes or 15 minutes versus one minute). Otherwise, the two issues discussed here may create some concern for traders.

UK-based Andrew Coles has master's and doctoral degrees in the history of science. He has a diploma in technical analysis from STA-UK and from the International Federation of Technical Analysts (IFTA). He is also a Certified Financial Technician (CFTe). With his colleague David Hawkins, he has written a book on the MIDAS system for Bloomberg Press/John Wiley. He can be reached via www.midasmarketanalysis.com.

SUGGESTED READING

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‡eSignal ‡MetaStock

See our Traders' Tips section beginning on page 64 for commentary on implementation of Andrew Coles's technique in various technical analysis programs. Accompanying program code can be found in the Traders' Tips area at Traders.com.

‡See Editorial Resource Index

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Exhibit B

Exhibit B

TRADERS' TIPS



For this month's Traders' Tips, the focus is Andrew Coles' article in this issue, "TD Sequential And Ermanometry For Intraday Traders."

MetaStock code for the TD Setup and Ermanometry techniques is already provided in Coles' article. Subscribers will also find the same code at the Subscriber Area of our website, www.Traders.com. Presented here is an overview of possible implementations for other software.

Traders' Tips are provided to help the reader implement a selected technique from an article in this issue. The entries are contributed by various software developers or programmers for software that is capable of customization.

Readers will find all the code listings that accompany the following Traders' Tips at our website, Traders.com. Provided here is some discussion of the technique's implementation by the Traders' Tips contributors as well as some example charts.

To locate Traders' Tips at our website, www.Traders.com, use our site's search engine, or click on the **Traders' Tips** link from our home page. For past Traders' Tips, click on the "STOCKS & COMMODITIES" link from our home page in the red box on the left, then click on the "Article Abstracts" link in the red box on the left, then click on the "Traders' Tips" button underneath an issue of interest. Or click on "S&C Magazine" from our home page and then click on "Archive."



◆ TRADESTATION: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

In "TD Sequential And Ermanometry For Intraday Traders" in this issue, author Andrew Coles suggests the use of Thomas DeMark's TD Sequential setup and William Erman's Ermanometry as two additional tools to aid traders in market timing.



FIGURE 1: TRADESTATION, TD SEQUENTIAL AND ERMANOMETRY.
Here is a sample 60-minute chart of SPY with the two indicators applied. The magenta dots are from the TD Sequential indicator and the cyan dots are from the Ermanometry indicator.

In the article, Coles describes the ideas and concepts behind the calculations and potential uses of these indicators.

We are offering the EasyLanguage code for the TD Sequential Setup and Ermanometry indicators in the EasyLanguage forum. To download the EasyLanguage code for the indicators, first navigate to the EasyLanguage FAQs and reference posts topic in the EasyLanguage Support Forum (https://www.tradestation.com/Discussions/Topic.aspx?Topic_ID=47452), scroll down, and click on the link labeled "Traders' Tips, TASC." Then select the appropriate link for the month and year. The ELD filename is "TDSequential_And_Ermanometry.ELD."

The code is also shown at Traders.com.

A sample chart is shown in Figure 1.

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◆ METASTOCK: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

Code for MetaStock is already provided in Andrew Coles' article in this issue, "TD Sequential And Ermanometry For Intraday Traders."

eSignal

◆ eSIGNAL: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

For this month's Traders' Tip, we've provided the eSignal formulas Ermanometry.efs and TDSetup.efs, based on Andrew Coles' article in this issue, "TD Sequential And Ermanometry For Intraday Traders."

The Ermanometry study (Figure 2) contains formula parameters to set the start date, start time, first wave period, and second wave period with options to show the Erman segments

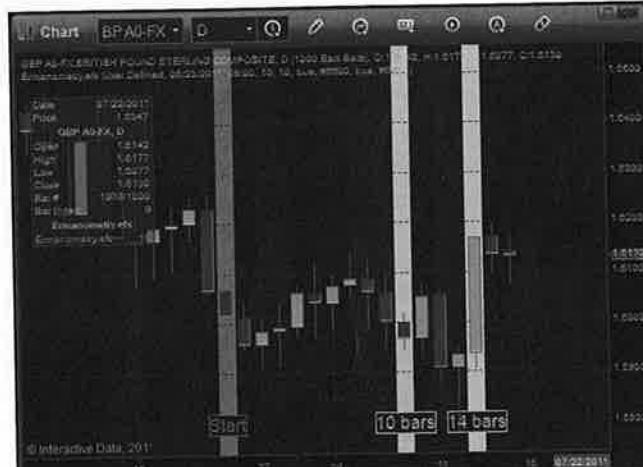


FIGURE 2: eSIGNAL, ERMANOMETRY STUDY



FIGURE 3: eSIGNAL, TD SETUP

and Coles segments, which may be configured through the Edit Chart window. This TDSetup study (Figure 3) also contains formula parameters to configure the price source, period, exhaustion period, buy setup, and sell setup colors.

To discuss this study or download a complete copy of the formula code, visit the EFS Library Discussion Board forum under the Forums link from the support menu at www.esignal.com, or visit our EFS KnowledgeBase at www.esignal.com/support/kb/efs/. The eSignal formula scripts (EFS) are also available for copying and pasting from the STOCKS & COMMODITIES website at Traders.com.

—Jason Keck

Interactive Data Desktop Solutions
800 815-8256, www.eSignal.com/support/



◆ WEALTH-LAB: INTRADAY APPLICATION OF ERMANOMETRY

The code for the time-based Ermanometry system described by Andrew Coles in his article in this issue, “TD Sequential And

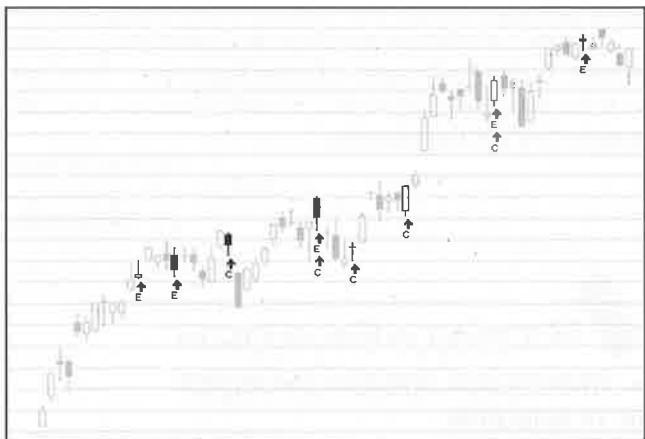


FIGURE 4: WEALTH-LAB, ERMANOMETRY. Here is a sample WealthLab Developer 6.2 chart showing the Ermanometry/Coles barchart markup applied to a daily chart. The Erman bars are red and the Coles series are blue.



FIGURE 5: AMIBROKER, TD SEQUENTIAL. Here is a 30-minute British pound futures chart with a DeMark buy (green) and sell (red) setup example.

Ermanometry For Intraday Traders,” is available for instant download from Wealth-Lab’s “Open strategy” dialog.

Users should be aware that with methods without a rock-solid starting point, it’s an open question as to whether automatic line placement on the chart removes the subjectivity. And one thing’s for sure: If you draw enough lines on a chart, some of them are bound to hit important turning points.

A sample chart is shown in Figure 4.

—Eugene

www.wealth-lab.com

AmiBroker

for Windows 95/98/Me/NT/2k/XP

◆ AMIBROKER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

In “TD Sequential And Ermanometry For Intraday Traders” in this issue, author Andrew Coles presents two timing techniques. A ready-to-use TD Sequential setup formula for AmiBroker is presented in Listing 1 shown at Traders.com, and the formula for Ermanometry is presented in Listing 2 at Traders.com. To use the formulas, enter them in the AFL editor, then press “insert indicator.” The starting point of a time series for Ermanometry can be selected either by a mouse-click or by using the parameter window to change the lengths of seed segments.

A sample chart is shown in Figure 5.

—Tomasz Janeczko, AmiBroker.com

www.amibroker.com



◆ NEUROSHELL TRADER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

The TD Sequential Setup and Ermanometry indicators described by Andrew Coles in his article in this issue, “TD Sequential And Ermanometry For Intraday Traders,” can be easily implemented with a few of NeuroShell Trader’s 800+

TRADERS' TIPS

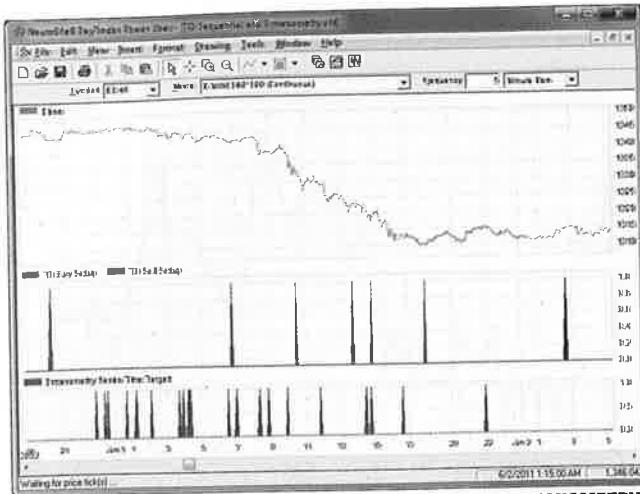


FIGURE 6: NEUROSHELL TRADER, TD SEQUENTIAL AND ERMANOMETRY.
This sample NeuroShell Trader chart shows the TD Sequential Setup and the Ermanometry indicators.

indicators. Select “New Indicator” from the Insert menu and use the indicator wizard to recreate the following indicators:

TD BuySetup:

AND2(A=B(Sum(A<B(Price, Lag(Price,4)), 9), 9), A>B(Lag(Price,9), Lag(Price,13)))

TD Sell Setup:

AND2(A=B(Sum(A>B(Price, Lag(Price,4)), 9), 9), A<B(Lag(Price,9), Lag(Price,13)))

Ratio: Divide(EF, DE)

InverseRatio: Divide(1, Divide(EF, DE))

CD: Multiply2(DE, InverseRatio)

BC: Multiply2(CD, InverseRatio)

AB: Multiply2(BC, InverseRatio)

FG: Multiply2(EF, Ratio)

GH: Multiply2(FG, Ratio)

HI: Multiply2(GH, Ratio)

IJ: Multiply2(HI, Ratio)

FH: SqrRt(Add2(Power(FG,2), Power(GH,2)))

BarsSince: BarsSinceCond(And2(DateIs(Year, Month, Day), TimeIs(Hour, Minute, Second, 0.25)))

Ermanometry Series Time Target: Or2(Or4(Or4(A=B(BarsSince, Quotient(FH,1)), A=B(BarsSince, Quotient(GH,1)), A=B(BarsSince, Quotient(HI,1)), A=B(BarsSince, Quotient(IJ,1))), Or4(A=B(BarsSince, Quotient(Add3(DE,EF,CD),1)), A=B(BarsSince, Quotient(Add3(GH,HI,IJ),1)), A=B(BarsSince, Quotient(Add2(Add3(CD,DE,EF),Add3(FG,GH),IJ),1)), A=B(BarsSince, Quotient(Add3(EE,FG,GH),1))), Or4(A=B(BarsSince, Quotient(Add3(FH,FG,GH),1))), Or4(A=B(BarsSince, Quotient(Add2(EE,FG,GH),1))), A=B(BarsSince, Quotient(Add2(CD,Add4(DE,EF,FG,GH))),1)), A=B(BarsSince, Quotient(Add3(CD,DE,Add4(EF,FG,GH,HI))),1)), A=B(BarsSince, Quotient(Add2(GH,Add4(IJ,CD,AB,EF)),1)), A=B(BarsSince, Quotient(Add3(FH,FG,GH),1))), Or4(A=B(BarsSince, Quotient(Add4(AB,B,C,CD,DE),1)), A=B(BarsSince, Quotient(Add2(AB,Add4(BC,CD,DE, GH))),1)), A=B(BarsSince, Quotient(Add2(FG,GH),1)), A=B(BarsSince, Quotient(Add2(GH,HI),1))), Or3(Or4(A=B(BarsSince, Quotient(Add3(FG,BC,CD),1)), A=B(BarsSince, Quotient(Add4(FG,BC,CD,DE),1)), A=B(BarsSince, Quotient(Add2(CD,BC),1)), A=B(BarsSince, Quotient(Add3(SqrRt(Add2(Power(CD,2),Power(DE,2))),CD,DE),1)), A=B(BarsSince, Quotient(Add3(SqrRt(Add2(Power(EF,2),Power(FG,2))),EF,FG),1))))

Note that the BarsSinceCond indicator is found in the Advanced Indicator Set 2 add-on, while the DateIs and

TimeIs indicators are found in the Advanced Indicator Set 3 add-ons.

Users of NeuroShell Trader can go to the STOCKS & COMMODITIES section of the NeuroShell Trader free technical support website to download a copy of this or any previous Traders' Tips.

A sample chart is shown in Figure 6.

—Marge Sherald, Ward Systems Group, Inc.
301 662-7950, sales@wardsystems.com
www.neuroshell.com



♦ **AIQ: MONEY FLOW INDICATORS**

For this month's Traders' Tip, I will provide AIQ code based the July 2011 article by Markos Katsanos, “Comparing Seven Money Flow Indicators.”

The amount of code that I have converted is quite extensive and includes the seven money flow indicators as well as the code for the 14 systems that Katsanos used to make comparative tests of the seven indicators. All of the code and systems are set up as one EDS file, available for download from www.TradersEdgeSystems.com/traderstips.htm. (The code is also shown at Traders.com.) Time did not permit me to run the comparative tests that were shown in the article.

—Richard Denning
info@TradersEdgeSystems.com
for AIQ Systems



♦ **TRADERSSTUDIO: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY**

For this month's Traders' Tip, I will provide TradersStudio code for the July 2011 article by Markos Katsanos, “Comparing Seven Money Flow Indicators.” The amount of code that was converted is quite extensive and includes seven functions that compute the seven money flow indicators as well as the code for the 14 systems that were used to make comparative tests of the seven indicators. Time did not permit me to run the comparative tests that were shown in the article.

The code can be downloaded from the TradersStudio website at www.TradersStudio.com → Traders Resources → FreeCode or www.TradersEdgeSystems.com/traderstips.htm. The code is also shown at Traders.com.

—Richard Denning
info@TradersEdgeSystems.com
for TradersStudio



♦ **STRATASEARCH: INTRADAY APPLICATION OF TD SEQUENTIAL**

Although Andrew Coles' article in this issue, “TD Sequential And Ermanometry For Intraday Traders,” discusses two different formulas, we decided to focus exclusively on Tom De-



FIGURE 7: STRATASEARCH, TD SEQUENTIAL. In this system, the buy signal is triggered by the TD Sequential buy setup, but the sell signal is triggered by a price oscillator divergence.

Mark's TD Sequential indicator. In addition to being originally intended for use with daily price bars, TD Sequential can also be used for backtesting. Ermanometry, on the other hand, uses a number of parameters that must be revised manually for each time period, and therefore cannot be backtested easily.

The issue that immediately arises with TD Sequential is that signals don't come up very frequently. Running against the S&P 500 stocks from 2000 to the present, TD Sequential produced only 369 trades in our tests. That's less than one trade every 11 years, per stock. Furthermore, using the TD Sequential sell setup as the exit, holding periods were nearly four years long. Such long holding periods helped create drawdowns exceeding 50%, which many traders would find unacceptable considering the system's moderate gains.

As a test, we decided to see how effective TD Sequential would be using only the buy setup, and relying on alternate indicators for the sell signal. Using the automated search in StrataSearch, we searched thousands of supporting trading rules and found some impressive results. Many indicator combinations had holding periods of one month or less, with percent profitability exceeding 70%. Annual returns were often over 40%, with drawdowns as low as 20%. In short, the TD Sequential indicator can produce some impressive results, but only when paired with the proper supporting indicators.

StrataSearch users can easily search for supporting indicators for the TD Sequential by downloading the plugin from the Shared Area of the StrataSearch user forum. After importing the plugin, simply launch the automated search to explore TD Sequential alongside thousands of supporting trading rules.

A sample chart is shown in Figure 7.

```
*****
// TD Sequential – Buy Setup
*****
value = parameter("Value");
TDSequentialBuy = if(
  HadAlert(value < ref(value, -1), 9) = 9 and
  ref(value, -9) > ref(value, -13), 1, 0);
```

```
*****
// TD Sequential – Sell Setup
*****
value = parameter("Value");
TDSequentialSell = if(
  HadAlert(value > ref(value, -1), 9) = 9 and
  ref(value, -9) < ref(value, -13), 1, 0);
```

—Pete Rast
Avarin Systems, Inc.
www.StrataSearch.com



◆ TRADECISION: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

In "TD Sequential And Ermanometry For Intraday Traders" in this issue, author Andrew Coles describes how to automate the TD Sequential and Ermanometry techniques to apply to intraday charts.

You can use Tradecision's Indicator Builder recreate his techniques. The Tradecision code to recreate the Ermanometry indicator is shown at Traders.com.

To import the strategy into Tradecision, visit the area "Traders' Tips from TASC Magazine" at www.tradecision.com/support/tasc_tips/tasc_traders_tips.htm or copy the code from the STOCKS & COMMODITIES website at Traders.com.

—Yana Timofeeva, Alyuda Research
510 931-7808, sales@tradecision.com
www.tradecision.com



◆ NINJATRADER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

The Ermanometry indicator and TD Sequential strategy, as presented by Andrew Coles in his article in this issue, "TD Sequential And Ermanometry For Intraday Traders," have now been implemented in NinjaTrader as an automated strategy and indicator available for download at www.ninjatrader.com/SC/September2011SC.zip.

Once it has been downloaded, select the menu File →

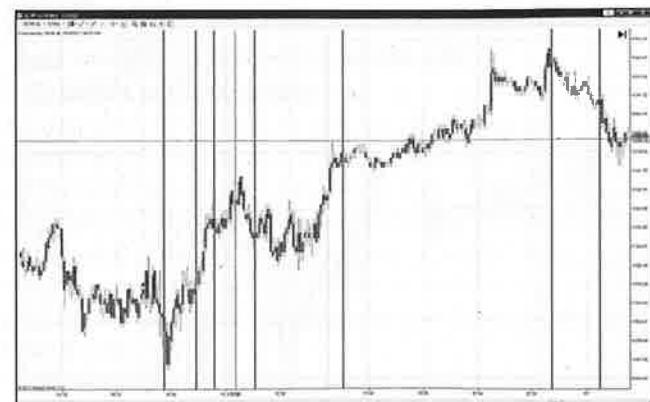


FIGURE 8: NINJATRADER, ERMANOMETRY INDICATOR. This screenshot shows the Ermanometry indicator applied to a five-minute chart of the emini S&P (ES 09-11).



Utilities → Import NinjaScript from within the NinjaTrader Control Center window and select the downloaded file. This file is for NinjaTrader version 7 or greater.

You can review the strategy source code by selecting the menu Tools → Edit NinjaScript → Strategy from within the NinjaTrader Control Center window and selecting “TdSequential.”

You can review the indicator source code by selecting the menu Tools → Edit NinjaScript → Indicator from within the NinjaTrader Control Center window and selecting “Ermanometry.”

NinjaScript uses compiled DLLs that run native, not interpreted, which provides you with the highest performance possible.

A sample chart implementing the strategy is shown in Figure 8.

—Raymond Deux & Ryan Millard
NinjaTrader, LLC
www.ninjatrader.com



◆ UPDATA: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

This tip is based on “TD Sequential And Ermanometry For Intraday Traders” by Andrew Coles in this issue. In the article, Coles describes uses of Tom DeMark’s TD Sequential and William Erman’s study of growth patterns (Ermanometry) in timing long and short entries for intraday strategies.

The Updata code for both indicators has now been added to the Updata Library and may be downloaded by clicking the Custom menu and then either “Indicator” or “System Library.” Those who cannot access the library due to a firewall may paste the code shown at Traders.com into the Updata custom editor and save it.

A sample chart is shown in Figure 9.

—Updata support team
support@updata.co.uk
www.updata.co.uk

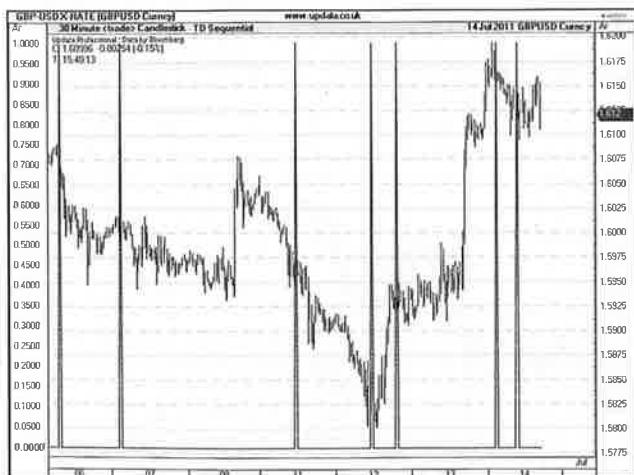


FIGURE 9: UPDATA, TD SEQUENTIAL. This chart shows the TD Sequential applied to spot rate GBP/USD, with notable reversals successfully picked out.



FIGURE 10: TRADESIGNAL, COUNTDOWN INDICATOR. This sample Tradesignal Online chart shows the countdown indicator on a daily chart of the German bund future.



◆ TRADESIGNAL: TD COUNTDOWN AND ERMANOMETRY

The TD Countdown and Ermanometry indicators can easily be used with our online charting tool at www.tradesignalonline.com. At our website, check the Infopedia section for our Lexicon. There, you will see the indicator and functions, which you can make available for your personal account. Simply click on it and select “Open script.” The indicator and functions will immediately be available for you to apply to any chart you wish.

The source code can be viewed at Traders.com.

—Henning Blumenthal
Tradesignal GmbH
support@tradesignalonline.com
www.TradesignalOnline.com, www.Tradesignal.com



◆ CHARTSY FOR WINDOWS/MAC/LINUX: TD SEQUENTIAL, ERMANOMETRY, LUCAS SERIES, FIBONACCI SERIES

This Traders’ Tip is based on Andrew Coles’ articles in the August 2011 issue (“About Fibonacci And Lucas: Automated Techniques For Intraday Traders”) and this issue (“TD Sequential And Ermanometry For Intraday Traders”).

The Lucas series overlay and Fibonacci series overlay described in Coles’ August 2011 article and the TD Sequential setup overlay and Ermanometry overlay described in Coles’ article in this issue are all available as overlay plugins in Chartsy. To install the overlays, go to the Tools → Plugins → Available plugins menu, check the desired indicator, and click Install.

You can find the Java source code for the overlays at the Chartsy website. Sample charts are shown in Figures 11–14.

To download Chartsy, discuss these tools, and help us develop other tools, please visit our forum at www.chartsy.org.

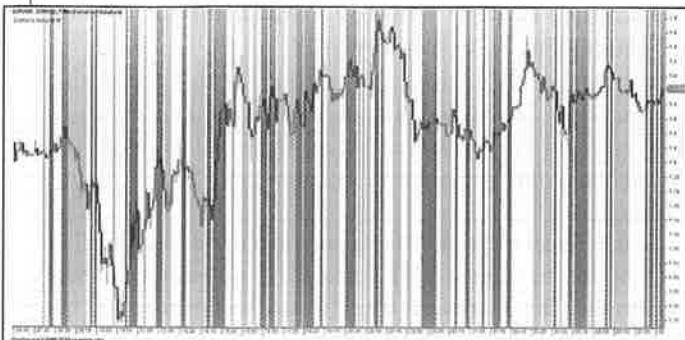


FIGURE 11: CHARTSY, TD SEQUENTIAL CHART OVERLAY

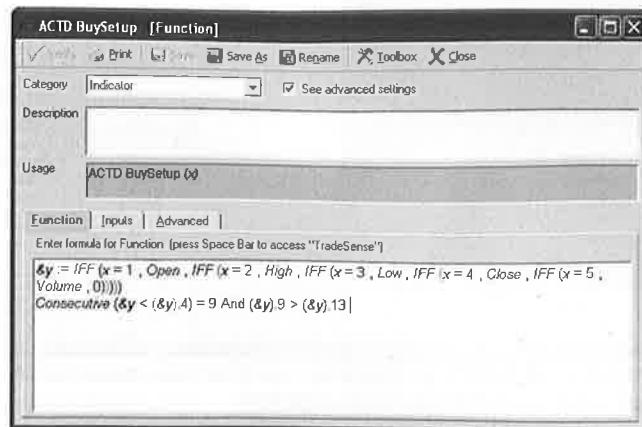


FIGURE 15: TRADE NAVIGATOR, ACTD BUY SETUP. Here is how to set up a function in Trade Navigator.



FIGURE 12: CHARTSY, ERMANOMETRY CHART OVERLAY



FIGURE 13: CHARTSY, FIBONACCI SERIES CHART OVERLAY



FIGURE 14: CHARTSY, LUCAS SERIES CHART OVERLAY

—Larry Swing
 (281) 968-2718, FVD@mrswing.com
 Yahoo & Skype ID: [larry.swing](#)
www.mrswing.com



◆ TRADE NAVIGATOR: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

You can recreate the indicators discussed in “TD Sequential And Ermanometry For Intraday Traders” by Andrew Coles in this issue using Trade Navigator. (See Figure 15 for an example of setting up a function by inputting the formula.) Once created, you can add these custom indicators to a chart and use the indicators to create a template that can be applied to any chart. The TradeSense code to recreate the TD Sequential And Ermanometry indicators can be viewed at Traders.com.

Genesis Financial Technologies has also provided a library named “TD Sequential And Ermanometry” that includes a template named “S&C Sept 2011 Andrew Coles” with the custom indicators discussed in Coles’ article. You can download a special file named “SC201109,” downloadable through Trade Navigator, to get this library.

—Michael Herman
 Genesis Financial Technologies
www.TradeNavigator.com



◆ VT TRADER: TD SEQUENTIAL SETUP AND ERMANOMETRY INDICATORS

Our Traders’ Tip this month is based on “TD Sequential And Ermanometry For Intraday Traders” by Andrew Coles in this issue. In this second part of the series, Cole discusses Thomas DeMark’s TD Sequential Setup technique (the momentum component of the TD Sequential method used to define price ranges) as well as William Erman’s Ermanometry. Coles describes how these market timing techniques can be mechanized for intraday traders.

We’ll be offering the TD Sequential Setup and Ermanometry indicators for download in our VT client forums at <http://forum.vtsystems.com>, along with hundreds of other pre-coded and free indicators and trading systems. The VT Trader instructions for



FIGURE 16: VT TRADER, TD SEQUENTIAL. Here is the TD Sequential setup indicator attached to a EUR/USD one-hour candle chart.



FIGURE 17: VT TRADER, ERMANOMETRY. Here is the Ermanometry indicator attached to a EUR/USD one-hour candle chart.

setting up these indicators can be viewed at Traders.com.

Sample charts of the TD Sequential Setup and Ermanometry indicator are shown in Figures 16 and 17.

To learn more about VT Trader, visit www.vtsystems.com.

Risk disclaimer: Forex trading involves a substantial risk of loss and may not be suitable for all investors.

—Chris Skidmore
Visual Trading Systems, LLC
212 871-1747, info@vtsystems.com
www.vtsystems.com

◆ MICROSOFT EXCEL: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

This month, author Andrew Coles continues his exploration of time series-based market studies with Ermanometry-based intervals and TD Sequential Setups in an article titled “TD Sequential And Ermanometry For Intraday Traders” in this issue.

In this Excel example, I have once again used data for TLT as I did for the August 2011 Traders’ Tip so we can compare the results. This example is coded to use the closing price, but provisions have been made to allow you to base the calculations on open, high, low, or close, similar to the MetaStock code given in Coles’ article.

In Excel terms, the only real difference between intraday, daily, weekly, or longer time frames is how one goes about specifying the bars that define segments DE and EF for the Erman study. The TD Sequential setups do not require a start date.

In Figure 18, the Erman left, mid, and right plots mark the ends of the ratio defining segments DE and EF chosen for this example. The spreadsheet is coded to start the Ermanometry counts and plots at the Erman right bar.

If you have access to historical intraday data, the notes tab outlines the simple cell format changes you would need to make to use this workbook with intraday data.

This workbook incorporates the chart data windowing ability I introduced in previous Excel Traders’ Tips. To take advantage of this feature you will need to enable VBA macro content when prompted.

Even if you choose not to enable VBA macro content, you may view the macros after you open the spreadsheet by using ALT-F11 to open the VBA integrated development environment.

Visit the Traders’ Tips area of Traders.com to download the “TDSequentialAndErmanometry.xls” spreadsheet file.

—Ron McAllister

EXCEL and VBA Programmer
rpmac_xlti@sprynet.com

S&C

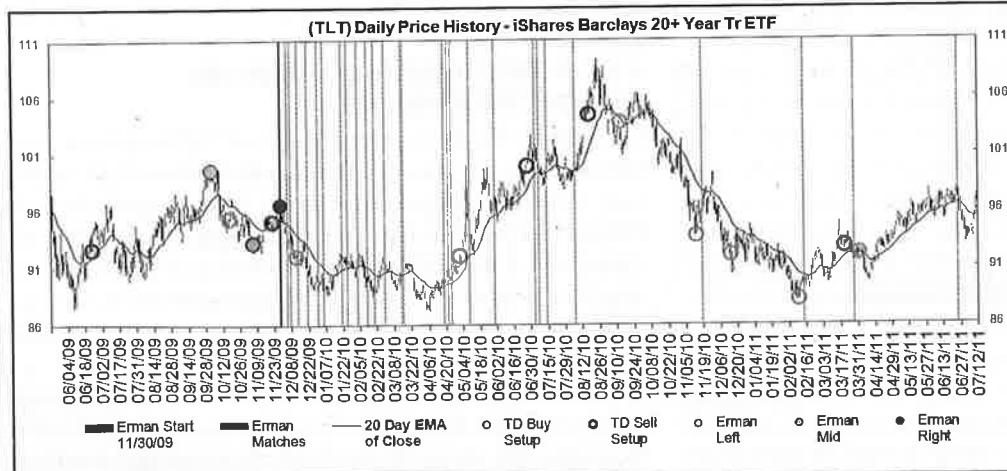


FIGURE 18: EXCEL, TD SEQUENTIAL AND ERMANOMETRY. The Erman left, middle, and right plots mark the ends of the ratio defining segments DE and EF chosen for this example. The spreadsheet is coded to start the Ermanometry counts and plots at the Erman right bar.

Exhibit C

Exhibit C

TRADERS' TIPS

September 2011

Here is this month's selection of Traders' Tips, contributed by various developers of technical analysis software to help readers more easily implement some of the strategies presented in this and other issues.

Other code appearing in articles in this issue is posted in the Subscriber Area of our website at <http://technical.traders.com/sub/sublogin.asp>. Login requires your last name and subscription number (from mailing label). Once logged in, scroll down to beneath the "Optimized trading systems" area until you see "Code from articles." From there, code can be copied and pasted into the appropriate technical analysis program so that no retyping of code is required for subscribers.

You can copy these formulas and programs for easy use in your spreadsheet or analysis software. Simply "select" the desired text by highlighting as you would in any word processing program, then use your standard key command for copy or choose "copy" from the browser menu. The copied text can then be "pasted" into any open spreadsheet or other software by selecting an insertion point and executing a paste command. By toggling back and forth between an application window and the open web page, data can be transferred with ease.

This month's tips include formulas and programs for:

eSIGNAL: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

WEALTH-LAB: INTRADAY APPLICATION OF ERMANOMETRY

AMIBROKER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

NEUROSHELL TRADER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

AIQ: MONEY FLOW INDICATORS

TRADERSSTUDIO: MONEY FLOW INDICATORS

STRATASEARCH: INTRADAY APPLICATION OF TD SEQUENTIAL

TRADECISION: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

NIINJATRADER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

UPDATA: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

TRADESIGNAL: TD COUNTDOWN AND ERMANOMETRY

CHARTSY: TD SEQUENTIAL, ERMANOMETRY, LUCAS SERIES, FIBONACCI SERIES

TRADE NAVIGATOR: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

VT TRADER: TD SEQUENTIAL SETUP AND ERMANOMETRY INDICATORS

MICROSOFT EXCEL: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

METASTOCK: TD SEQUENTIAL AND ERMANOMETRY FOR INTRADAY TRADERS — COLES ARTICLE CODE

BLOOMBERG: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

The computer code published on this webpage reflects the efforts of third parties to code the indicators discussed in the following article, published in the September 2011 issue of Technical Analysis of STOCKS & COMMODITIES: Andrew Coles, 'TD Sequential and Ermanometry for Intraday Traders.' The code published on this webpage or in the September 2011 issue of STOCKS & COMMODITIES is not sponsored or endorsed by, nor affiliated with, Thomas DeMark or his company, Market Studies LLC, and it should not be confused with any software that he or his company may offer, or license others to offer, for purchase or licensing.



eSIGNAL: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

For this month's Traders' Tip, we've provided the eSignal formulas Ermanometry.efs and TDSetup.efs, based on Andrew Coles' article in this issue, "[TD Sequential And Ermanometry For Intraday Traders](#)".

The Ermanometry study (Figure 2) contains formula parameters to set the start date, start time, first wave period, and second wave period with options to show the Erman segments and Coles segments, which may be configured through the Edit Chart window. This TDSetup study (Figure 3) also contains formula parameters to configure the price source, period, exhaustion period, buy setup, and sell setup colors.



FIGURE 2: ESIGNAL, TD SETUP



FIGURE 3: ESIGNAL, ERMANOMETRY STUDY

To discuss this study or download a complete copy of the formula code, visit the EFS Library Discussion Board forum under the Forums link from the support menu at www.esignal.com, or visit our EFS KnowledgeBase at www.esignal.com/support/kb/efs/. The eSignal formula scripts (EFS) are also shown here for copying and pasting, and can be downloaded here: [Ermanometry.efs](#) and [TDSetup.efs](#).

"Ermanometry.efs"

```
*****
```

Provided By:

Interactive Data Corporation (Copyright © 2010)
All rights reserved. This sample eSignal Formula Script (EFS)
is for educational purposes only. Interactive Data Corporation
reserves the right to modify and overwrite this EFS file with
each new release.

Description:

Ermanometry For Intraday Traders

Version: 1.00 14/06/2010

Formula Parameters:

	Default:
Select Start Date	First Bar On Chart
Start Date (mm/dd/yyyy)	
Start Time	00:00
The First Wave Period	10
The Second Wave Period	10
Show Erman Segments	true
Erman Segments Color	Color.yellow
Show Coles Segments	true
Colse Segments Color	Color.yellow

Notes:

The related article is copyrighted material. If you are not a subscriber
of Stocks & Commodities, please visit www.traders.com.

```
***** /
```

```
var bVersion = null;
var fpArray = new Array();
function preMain()
{
    setPriceStudy(true);
    setPlotType(PLOTTYPE_FLATLINES);

    var x = 0;
    fpArray[x] = new FunctionParameter("gFirstBar", FunctionParameter.STRING);
    with(fpArray[x++]){
        setName("Select Start Date");
        addOption("First Bar On Chart");
        addOption("User Defined");
        setDefault("First Bar On Chart");
    }

    fpArray[x] = new FunctionParameter("gStartDate", FunctionParameter.STRING);
    with (fpArray[x++])
    {
        setName("Start Date (mm/dd/yyyy) " );
        setDefault("");
    }

    fpArray[x] = new FunctionParameter("gStartTime", FunctionParameter.STRING);
    with (fpArray[x++])
    {
        setName("Start Time (hh:mm) " );
        setDefault("00:00");
    }
}
```

—Jason Keck

Interactive Data Desktop Solutions

800 815-8256, www.eSignal.com/support/

[BACK TO LIST](#)



WEALTH-LAB: INTRADAY APPLICATION OF ERMANOMETRY

The Wealth-Lab code for the time-based Ermanometry system described by Andrew Coles in his article in this issue, "[TD Sequential And Ermanometry For Intraday Traders](#)," is available for instant download from Wealth-Lab's "Open strategy" dialog. The code is also shown below.

Users should be aware that with methods without a rock-solid starting point, it's an open question as to whether automatic line placement on the chart removes the subjectivity. And one thing's for sure: If you draw enough lines on a chart, some of them are bound to hit important turning points.

A sample chart is shown in Figure 4.



FIGURE 4: WEALTH-LAB, ERMANOMETRY. Here is a sample Wealth-Lab Developer 6.2 chart showing the Ermanometry/Coles barchart markup applied to a daily chart. The Erman bars are red and the Coles series are blue.

```
_TD_Seq_Setup (Indicator)

{ TASC Article, September 2011 }
{ Tom DeMark TD Sequential Setup }

inputs:
    Price( Close ),
    DotOffsetTicks( 5 ) ;

variables:
    MyTick( MinMove / PriceScale ),
    LongCount( 0 ),
    ShortCount( 0 ) ;

LongCount = Iff( Price < Price[4], LongCount + 1, 0 ) ;
ShortCount = Iff( Price > Price[4],
    ShortCount + 1, 0 ) ;

{ Buy Setup }
if LongCount = 9 and Price[9] > Price[13] then
    Plot1( L - DotOffsetTicks * MyTick, "TD Buy SU" )
else
    NoPlot( 1 ) ;

{ Sell Setup }
if ShortCount = 9 and Price[9] < Price[13] then
    Plot2( H + DotOffsetTicks * MyTick, "TD Sell SU" )
else
    NoPlot( 2 ) ;
```

```
_Ermanometry (Indicator)
```

```
{ TASC Article, September 2011 }
{ Ermanometry - William Erman }

inputs:
    StartBarDate( 1110101 ), { EasyLanguage bar Date
        for start bar }
    StartBarTime( 0900 ), { EasyLanguage bar Time for
        start bar }
    EF( 1 ), { number of bars of first leg }
    DE( 1 ), { number of bars of second leg }
    PlotColes( true ), { include plots for Coles
        additions }
    DotOffsetTicks( 5 ) ;

variables:
    MyTick( MinMove / PriceScale ),
    StartBar( 0 ),
    X( 0 ),
    Ratio( 0 ),
    InverseRatio( 0 ),
    CD( 0 ),
    BC( 0 ),
    AB( 0 ),
    FG( 0 ),
    GH( 0 ),
    HI( 0 ),
    IJ( 0 ),
    FH( 0 ) ;
```

—Eugene
www.wealth-lab.com

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AMI BROKER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

In "TD Sequential And Ermanometry For Intraday Traders" in this issue, author Andrew Coles presents two timing techniques. A ready-to-use TD Sequential Setup formula for AmiBroker is presented in Listing 1, and the formula for Ermanometry is presented in Listing 2 below. To use the formulas, enter them in the AFL editor, then press "insert indicator." The starting point of a time series for Ermanometry can be selected either by a mouse-click or by using the parameter window to change the lengths of seed segments.

A sample chart is shown in Figure 5.



FIGURE 5: AMIBROKER, TD SEQUENTIAL. Here is a 30-minute British pound futures chart with a DeMark buy (green) and sell (red) Setup example.

LISTING 1

```
// TD Sequential Setup
Plot( C, "Price", colorBlack, styleCandle );
y = ParamField("Price field");

Buy = Sum( y < Ref( y, -4 ), 9 ) == 9 AND Ref( y, -9 ) > Ref( y, -13 );
Sell = Sum( y > Ref( y, -4 ), 9 ) == 9 AND Ref( y, -9 ) < Ref( y, -13 );

PlotShapes( Buy * shapeUpArrow + Sell * shapeDownArrow, IIf( Buy, colorGreen,
colorRed ), 0, IIf( Buy, L, H ) );
```

LISTING 2

```
// Ermanometry
Plot( C, "Price", colorBlack, styleCandle );
dt = DateTime();
Start = dt == SelectedValue( dt );

EF = Param("Seed Seg EF", 48, 1, 900 );
DE = Param("Seed Seg DE", 40, 1, 900 );

Ratio = EF/DE;
InverseRatio = 1/Ratio;

x = BarsSince( start );
CD = DE * Inverseratio;
BC = CD * Inverseratio;
AB = BC * Inverseratio;
FG = EF* Ratio;
GH = FG * Ratio;
HI = GH * Ratio;
IJ = HI * Ratio;

FH = sqrt( FG ^ 2 + GH ^ 2 );

Erman =
x == int(FH) OR /* Erman */
x == int(GH) OR /* Erman */
x == int(HI) OR /* Erman */
x == int(IJ) OR /* Erman */
x == int(DE+EF+CD) OR /* Erman */
x == int(GH+HI+IJ) OR /* Erman */
x == int(CD+DE+EF+FG+GH+HI) OR /* Erman */
x == int(EF+FG+GH) OR /* Erman */
x == int(CD+DE+EF+FG+GH) OR /* Erman */
x == int(CD+DE+EF+FG+GH+HI) OR /* Erman */
x == int(GH+IJ+CD+AB+EF); /* Erman */

Plot( Erman, "Erman", colorRed, styleHistogram | styleOwnScale );
```

```
FH = sqrt( FG ^ 2 + GH ^ 2 );
```

```
Coles =
x == int(FH+FG+GH) OR /* Coles */
x == int(AB+BC+CD+DE) OR /* Coles */
x == int(AB+BC+CD+DE+GH) OR /* Coles */
x == int(FG+GH) OR /* Coles */
x == int(GH+HI) OR /* Coles */
x == int(FG+BC+CD) OR /* Coles */
x == int(FG+BC+CD+DE) OR /* Coles */
x == int(CD+BC) OR /* Coles */
x == int(DE+BC) OR /* Coles */
```

—Tomasz Janeckzo, AmiBroker.com
www.amibroker.com

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NEUROSHELL TRADER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

The TD Sequential Setup and Ermanometry indicators described by Andrew Coles in his article in this issue, "[TD Sequential And Ermanometry For Intraday Traders](#)," can be easily implemented with a few of NeuroShell Trader's 800+ indicators. Select "New Indicator" from the Insert menu and use the indicator wizard to recreate the following indicators:

TD BuySetup:

```
AND2( A=B( Sum( A<B(Price, Lag(Price,4) ), 9 ), 9 ), A>B( Lag(Price,9), Lag(Price,13) ) )
```

TD Sell Setup:

```
AND2( A=B( Sum( A>B(Price, Lag(Price,4) ), 9 ), 9 ), A<B( Lag(Price,9), Lag(Price,13) ) )
```

Ratio: Divide(EF, DE)

InverseRatio: Divide(1, Divide(EF, DE))

CD: Multiply2(DE, InverseRatio)

BC: Multiply2(CD, InverseRatio)

AB: Multiply2(BC, InverseRatio)

FG: Multiply2(EF, Ratio)

GH: Multiply2(FG, Ratio)

HI: Multiply2(GH, Ratio)

IJ: Multiply2(HI, Ratio)

FH: SqrRt(Add2(Power(FG,2), Power(GH,2)))

BarsSince: BarsSinceCond(And2(DateIS(Year, Month, Day), TimeIS(Hour, Minute, Second, 0.25)))

Ermanometry Series Time Target: Or2(Or4(Or4(A=B(BarsSince, Quotient(FH,1)), A=B(BarsSince, Quotient(GH,1))), A=B(BarsSince, Quotient(HI,1))), A=B(BarsSince, Quotient(IJ,1))), Or4(A=B(BarsSince, Quotient(Add3(DE,EF,CD),1)), A=B(BarsSince, Quotient(Add3(GH,HI,IJ),1))), A=B(BarsSince, Quotient(Add2(Add3(CD,DE,EF),Add3(FG,GH,HI)),1)), A=B(BarsSince, Quotient(Add3(EF,FG,GH),1))), Or4(A=B(BarsSince, Quotient(Add2(CD,Add4(DE,EF,FG,GH))),1)), A=B(BarsSince, Quotient(Add3(CD,DE,Add4(EF,FG,GH,HI))),1)), A=B(BarsSince, Quotient(Add2(GH,Add4(IJ,CD,AB,EF)),1)), A=B(BarsSince, Quotient(Add3(FH,FG,GH),1))), Or4(A=B(BarsSince, Quotient(Add4(AB,BC,CD,DE),1)), A=B(BarsSince, Quotient(Add2(AB,Add4(BC,CD,DE,GH)),1)), A=B(BarsSince, Quotient(Add2(FG,GH),1))), A=B(BarsSince, Quotient(Add2(GH,HI),1))), Or3(Or4(A=B(BarsSince, Quotient(Add3(FG,BC,CD),1)), A=B(BarsSince, Quotient(Add4(FG,BC,CD,DE),1)), A=B(BarsSince, Quotient(Add2(CD,BC),1)), A=B(BarsSince, Quotient(Add2(DE,BC),1))), A=B(BarsSince, Quotient(Add3(SqrRt(Add2(Power(CD,2),Power(DE,2))),CD,DE),1))), A=B(BarsSince, Quotient(Add3(SqrRt(Add2(Power(EF,2),Power(FG,2))),EF,FG),1))))

Note that the BarsSinceCond indicator is found in the Advanced Indicator Set 2 add-on, while the Datels and Timels indicators are found in the Advanced Indicator Set 3 add-ons.

Users of NeuroShell Trader can go to the STOCKS & COMMODITIES section of the NeuroShell Trader free technical support website to download a copy of this or any previous Traders' Tips.

A sample chart is shown in Figure 6.



FIGURE 6: NEUROSHELL TRADER, TD SEQUENTIAL AND ERMANOMETRY. This sample NeuroShell Trader chart shows the TD Sequential Setup and the Ermanometry indicators.

—Marge Sherald, Ward Systems Group, Inc.
301 662-7950, sales@wardsystems.com
www.neuroshell.com

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AIQ: MONEY FLOW INDICATORS

For this month's Traders' Tip, I will provide AIQ code based the July 2011 article by Markos Katsanos, "[Comparing Seven Money Flow Indicators](#)."

The amount of code that I have converted is quite extensive and includes the seven money flow indicators as well as the code for the 14 systems that Katsanos used to make comparative tests of the seven indicators. All of the code and systems are set up as one EDS file, available for download from www.TradersEdgeSystems.com/tradertips.htm. The code is also shown here. Time did not permit me to run the comparative tests that were shown in the article.

```
! COMPARING SEVEN MONEY FLOW INDICATORS
! Author: Markos Katsanos, TASC July 2011
! Coded by: Richard Denning 7/17/2011
! www.TradersEdgeSystems.com
```

```
!Shown here is the AIQ code for the direction and divergence systems based
!on the seven money-flow indicators discussed in Markos Katsanos' article in the
!July 2011 issue of Technical Analysis of Stocks & Commodities, "Comparing Seven
Money Flow Indicators."
!Here are some notes on the systems from author Markos Katsanos:
!The moving average period and money flow level parameters were optimized for
each system.
!All systems are similar and use only money flow criteria except for the volume
oscillator,
!which was used to confirm a price-based indicator.
!There is no need to create any additional functions because all necessary code
for the money
!flow indicators is included in each system.
!If you wish to replicate the tests, keep in mind that for the test to begin
producing signals,
!the indicators and linear regression should first be calculated, and this
requires a number of
!bars to be loaded first and the test start date to be adjusted backwards.
!For all the following tests (except the VFI), I loaded 81 additional bars
!(21 bars for the money flow + 60 bars for the moving average calculation) and
moved the test
!start date 81 trading days earlier to 07/07/2000, so that each test could start
producing trades from 10/31/2000.
```

```
!MONEY FLOW DIRECTION SYSTEMS
!FVE direction test
!INPUTS:
MFPERIOD1 is 21.
MABUY1 is 60.
MASELL1 is 60.
FVEBUY1 is 10.
FVESELL1 is 0.
XTIME is 42.
SDBARS is 30.
PREV is 7.
SDCR1 is 0.5.

!FVE CALCULATION
TP is ([High] + [Low] + [Close])/3.
TP1 is valresult(TP,1).
INTR1 is LN([High])-LN([Low]).
VINTRA1 is sqrt(variance(INTR1, MFPERIOD1)).
INTER1 is LN(TP)- LN(TP1).
VINTER1 is sqrt(variance(INTER1, MFPERIOD1)).
CUTOFF1 is 0.1*VINTRA1 + 0.1*VINTER1.
MF1 is ([Close] - ([High] + [Low])/2)+ TP-TP1.
FveFactor1 is iff( MF1>CutOff1*[Close],1,iff(MF1<-1*CutOff1*[Close],-1,0)).
VolumePlusMinus1 is [Volume] * FveFactor1.
VA is simpleavg([Volume],MFPERIOD1).
FVEsum is Sum(VolumePlusMinus1, MFPERIOD1).
FVE is iff( VA<>0,(FVEsum /(VA*MFPERIOD1))*100,0).
avgFVE is simpleavg(FVE, MABUY1).
avgFVEsell is simpleavg(FVE, MASELL1).

!BUY
```

—Richard Denning
info@TradersEdgeSystems.com
for AIQ Systems

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TRADERSSTUDIO: MONEY FLOW INDICATORS

For this month's Traders' Tip, I will provide TradersStudio code for the July 2011 article by Markos Katsanos, **"Comparing Seven Money Flow Indicators."** The amount of code that was converted is quite extensive and includes seven functions that compute the seven money flow indicators as well as the code for the 14 systems that were used to make comparative tests of the seven indicators. Time did not permit me to run the comparative tests that were shown in the article.

The code can be downloaded from the TradersStudio website at www.TradersStudio.com → **Traders Resources** → **FreeCode** or www.TradersEdgeSystems.com/traderstips.htm. The code is also shown below.

```
'COMPARING SEVEN MONEY FLOW INDICATORS
'Author: Markos Katsanos, TASC July 2011
'Coded by: Richard Denning 7/17/2011
'www.TradersEdgeSystems.com

' LINEAR REGRESSION FUNCTION
'Parameters
' Y specifies which Price Of the asset Of interest is To be used
' SLen the number Of trailing bars To consider
' TargetB represents the number Of bars into the future Or back into the past
' Returns a numeric value containing the current value Of the specified
regression line at TargetB.
' Changes values of variables rSqrD, slopeR, endVal to those the least squares
line computed by the function
' R squared (rSqrD) is the measure of how well the line fits the data (will vary
from 0 (no fit) to 1.00 (perfect fit))
' slope (slopeR) is the rise over run of the line
' endVal is the value of the line at the current bar

'the regression formulas can be checked using the Excel tutorial on linear
regression found at:
'http://phoenix.phys.clemson.edu/tutorials/excel/regression.html

Function LinearRegSRV(Y As BarArray, SLen, TargetB, ByRef rSqrD, ByRef slopeR,
ByRef endVal) As BarArray
    Dim X As BarArray
    Dim Num1 As BarArray
    Dim Num2 As BarArray
    Dim SumX As BarArray
    Dim SumSqrX As BarArray
    Dim SumY As BarArray
    Dim SumSqrY As BarArray
    Dim SumXY As BarArray
    Dim Slope As BarArray
    Dim Intercept As BarArray

    If SLen <= 0 Then
        LinearRegSRV = 0
    Else

        SumX = 0
        SumSqrX = 0
        SumY = 0
        SumSqrY = 0
        SumXY = 0
        'Sum2 = 0

        For X = 0 To SLen - 1
            SumX = SumX + X
            SumSqrX = SumSqrX + X * X
            SumY = SumY + Y[X]
            SumSqrY = SumSqrY + Y[X] * Y[X]
            SumXY = SumXY + X * Y[X]
        Next

        'SumY = Summation(Price, SLen)
        'SumBars = SLen * (SLen - 1) * .5
        'SumSqrBars = (SLen - 1) * SLen * (2 * SLen - 1) / 6
        'Sum2 = SumBars * SumY
        'Num1 = SLen * Sum1 - Sum2
        'Num2 = SumBars * SumBars - SLen * SumSqrBars
```

—Richard Denning
 info@TradersEdgeSystems.com
 for TradersStudio

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STRATASEARCH: INTRADAY APPLICATION OF TD SEQUENTIAL

Although Andrew Coles' article in this issue, "TD Sequential And Ermanometry For Intraday Traders," discusses two different formulas, we decided to focus exclusively on Tom DeMark's TD Sequential indicator. In addition to being originally intended for use with daily price bars, TD Sequential can also be used for backtesting. Ermanometry, on the other hand, uses a number of parameters that must be revised manually for each time period, and therefore cannot be backtested easily.

The issue that immediately arises with TD Sequential is that signals don't come up very frequently. Running against the S&P 500 stocks from 2000 to the present, TD Sequential produced only 369 trades in our tests. That's less than one trade every 11 years, per stock. Furthermore, using the TD Sequential sell Setup as the exit, holding periods were nearly four years long. Such long holding periods helped create drawdowns exceeding 50%, which many traders would find unacceptable considering the system's moderate gains.

As a test, we decided to see how effective TD Sequential would be using only the buy Setup, and relying on alternate indicators for the sell signal. Using the automated search in StrataSearch, we searched thousands of supporting trading rules and found some impressive results. Many indicator combinations had holding periods of one month or less, with percent profitability exceeding 70%. Annual returns were often over 40%, with drawdowns as low as 20%. In short, the TD Sequential indicator can produce some impressive results, but only when paired with the proper supporting indicators.

StrataSearch users can easily search for supporting indicators for the TD Sequential by downloading the plugin from the Shared Area of the StrataSearch user forum. After importing the plugin, simply launch the automated search to explore TD Sequential alongside thousands of supporting trading rules.

A sample chart is shown in Figure 7.



FIGURE 7: STRATASEARCH, TD SEQUENTIAL. In this system, the buy signal is triggered by the TD Sequential buy Setup, but the sell signal is triggered by a price oscillator divergence.

```
// ****
// TD Sequential - Buy Setup
// ****
value = parameter("Value");
TDSequentialBuy = if(
    HadAlert(value < ref(value, -1), 9) = 9 and
    ref(value, -9) > ref(value, -13), 1, 0);

// ****
// TD Sequential - Sell Setup
// ****
value = parameter("Value");
TDSequentialSell = if(
    HadAlert(value > ref(value, -1), 9) = 9 and
    ref(value, -9) < ref(value, -13), 1, 0);
```

—Pete Rast
Avarin Systems, Inc.
www.StrataSearch.com

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TRADECISION: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

In “[TD Sequential And Ermanometry For Intraday Traders](#)” in this issue, author Andrew Coles describes how to automate the TD Sequential and Ermanometry techniques to apply to intraday charts.

Below is the Tradecision code to recreate the Ermanometry indicator using Tradecision’s Indicator Builder. Following that is the code to recreate the TD Sequential strategy using Tradecision’s Strategy Builder.

To import the strategy into Tradecision, visit the area “Traders’ Tips from TASC Magazine” at www.tradecision.com/support/tasc_tips/tasc_traders_tips.htm or copy the code below.

ERMANOMETRY indicator:

```
input
StartingYear:"Starting Year", 2010, 1980, 2100;
StartingMonth:"starting month", 1, 1, 12;
StartingDay:"starting day of month", 1, 1, 31;
StartingHour:"hour", 1, 1, 24;
StartingMinute:"minute", 0, 0, 60;
EF:"seed segment EF (first wave)", 10, 1, 900;
DE:"seed segment DE (second wave)", 10, 1, 900;
end_input

var
Ratio:=0;
Inverseratio:=0;
StartBar:=0;
StartFound:=false;
x:=0;
CD:=0;
BC:=0;
AB:=0;
FG:=0;
GH:=0;
HI:=0;
IJ:=0;
FH:=0;
end_var

if HistorySize > 0 then begin
  startFound:=startFound\1\
  StartBar:=startBar\1\
end;

if (not startFound and Year = StartingYear and Month = StartingMonth and
DayOfMonth = StartingDay and Hour = StartingHour and Minute = StartingMinute)
then
begin
  startBar:=BarNumber();
  startFound:=true;
end;

if (not startFound) then
  return 0;

Ratio:=EF / DE;
Inverseratio:=1 / (EF / DE);
CD:=DE * Inverseratio;
BC:=CD * Inverseratio;
AB:=BC * Inverseratio;
FG:=EF * Ratio;
GH:=FG * Ratio;
HI:=GH * Ratio;
IJ:=HI * Ratio;
FH:=SquareRoot(Power(FG, 2) + Power(GH, 2));
x:= barnumber - startbar;

{start of calculations}
if x = Int(FH) then return 1; {Erman}
if x = Int(GH) then return 1; {Erman}
if x = Int(HI) then return 1; {Erman}
if x = Int(IJ) then return 1; {Erman}
```

Using Tradecision's Strategy Builder, one needs to create the TD SEQUENTIAL strategy:

TD SEQUENTIAL strategy:

Entry Long:

```
var
x:= Close;
y:=0;
count:=0;
i:=0;
end_var
y:=iff(x = O, 0, iff(x = H, H, iff(x = L, L, iff(x = C, L, iff(x = V, V, 0)))));

if HISTORYSIZE > 14 then begin

for i := 0 to 9 do
begin
    if y\i\ < y\4 +i\ then
        count := count + 1;
end;

return count = 9 and y\9\ > y\13\;
end;
return false;
```

Entry Short:

```
var
x:= Close;
y:=0;
count:=0;
i:=0;
end_var
y:=iff(x = O, 0, iff(x = H, H, iff(x = L, L, iff(x = C, L, iff(x = V, V, 0)))));

if HISTORYSIZE > 14 then begin

for i := 0 to 9 do
begin
    if y\i\ > y\4 +i\ then
        count := count + 1;
end;

return count = 9 and y\9\ < y\13\;
end;
return false;
```

TD SEQUENTIAL strategy:

Entry Long:

```
var
x:= Close;
y:=0;
count:=0;
i:=0;
end_var
y:=iff(x = O, 0, iff(x = H, H, iff(x = L, L, iff(x = C, L, iff(x = V, V, 0)))));

if HISTORYSIZE > 14 then begin
```

—Yana Timofeeva, Alyuda Research
 510 931-7808, sales@tradecision.com
www.tradecision.com

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NINJATRADER: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

The Ermanometry indicator and TD Sequential strategy, as presented by Andrew Coles in his article in this issue, “[TD Sequential And Ermanometry For Intraday Traders](#),” have now been implemented in NinjaTrader as an automated strategy and indicator available for download at www.ninjatrader.com/SC/September2011SC.zip.

Once it has been downloaded, select the menu File → Utilities → Import NinjaScript from within the NinjaTrader Control Center window and select the downloaded file. This file is for NinjaTrader version 7 or greater.

You can review the strategy source code by selecting the menu Tools → Edit NinjaScript → Strategy from within the NinjaTrader Control Center window and selecting “TdSequential.”

You can review the indicator source code by selecting the menu Tools → Edit NinjaScript → Indicator from within the NinjaTrader Control Center window and selecting “Ermanometry.”

NinjaScript uses compiled DLLs that run native, not interpreted, which provides you with the highest performance possible.

A sample chart implementing the strategy is shown in Figure 8.



FIGURE 8: NINJATRADER, ERMANOMETRY INDICATOR.
 This screenshot shows the Ermanometry indicator applied to a five-minute chart of the emini S&P (ES 09-11).

—Raymond Deux & Ryan Millard
 NinjaTrader, LLC
www.ninjatrader.com

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UPDATA: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

This tip is based on “[TD Sequential And Ermanometry For Intraday Traders](#)” by Andrew Coles in this issue. In the article, Coles describes uses of Tom DeMark's TD Sequential and William Erman's study of growth patterns (Ermanometry) in timing long and short entries for intraday strategies.

The Updata code for both indicators has now been added to the Updata Library and may be downloaded by clicking the Custom menu and then either “Indicator” or “System Library.” Those who cannot access the library due to a

firewall may paste the code below into the Updata custom editor and save it.

A sample chart is shown in Figure 9.



FIGURE 9: UPDATA, TD SEQUENTIAL. This chart shows the TD Sequential applied to spot rate GBP/USD, with notable reversals successfully picked out.

```
PARAMETER "O[1],H[2],L[3],C[4],V[5]" #OHLC=4
DISPLAYSTYLE LINE
PLOTSTYLE LINE RGB(0,0,255)
INDICATORTYPE CHART SUPERIMPOSELEFT
@LongCount=0
@SellCount=0
#BuySetUp=0
#SellSetUp=0
@Price=0

FOR #CURDATE=9 TO #LASTDATE

    If #OHLC=1
        @Price=OPEN
    ElseIf #OHLC=2
        @Price=HIGH
    ElseIf #OHLC=3
        @Price=LOW
    ElseIf #OHLC=4
        @Price=CLOSE
    ElseIf #OHLC=5
        @Price=VOL
    EndIf

    'Buy Setup Initial
    If @Price<Hist(@Price,4)
        @LongCount=@LongCount+1
    Else
        @LongCount=0
    EndIf

    'Sell Setup Initial
    If @Price>Hist(@Price,4)
        @SellCount=@SellCount+1
    Else
        @SellCount=0
    EndIf

    'Buy Confirmation
    If Hist(@LongCount,1)>=9 AND @Price>Hist(@Price,4)
        #BuySetUp=1
    Else
        #BuySetUp=0
    EndIf
    'Sell Confirmation
    If Hist(@SellCount,1)>=9 AND @Price<Hist(@Price,4)
        #SellSetUp=1
    Else
        #SellSetUp=0
    EndIf

    @Plot=#BuySetUp+#SellSetUp

NEXT
```

*—Updata support team
support@updata.co.uk
www.updata.co.uk*

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TRADESIGNAL: TD COUNTDOWN AND ERMANOMETRY

The TD Countdown and Ermanometry indicators can easily be used with our online charting tool at www.tradesignalonline.com. At our website, check the Infopedia section for our Lexicon. There, you will see the indicator and functions, which you can make available for your personal account. Simply click on it and select "Open script." The indicator and functions will immediately be available for you to apply to any chart you wish.

The source code is also shown below, or can be downloaded here:

- [BearishFlip.eqf](#)
- [BullishFlip.eqf](#)
- [CountDown.eqi](#)
- [Ermanometry.eqi](#)

```
***** Source Code for the Ermanometry Indicator*****
Meta:
    Weblink("http://www.tradesignalonline.com/lexicon/view.aspx?id=17169"),
    Synopsis("Based on the article 'TD Sequential And Ermanometry For
Intraday Traders' by Andrew Coles from the 09/2011 issue of Stocks and
Commodities."),
    ShortCode("ERM");

Inputs:
    Start_Cond( Bars_Back, Date_Time ),
    Bars( 500 ),
    Start_Date( "02.01.2011" ),
    Start_Time( 1000 ),
    EF( 100, 1, 900 ),
    DE( 50, 1, 900 );

Vars:
    startCond, ratio, inverseratio, x, ab, cd, gh, fg, ij, hi, fh, bc;

If Start_Cond = 0 Then
    startCond = CurrentBar = LastBar - Bars
Else startCond = Date = ResolveDate( Start_Date ) And Time = Start_Time ;

If startCond Then
    DrawSymbol( Close, "Start", SymbolVerticalLine, 1, Black, Black );

ratio = EF/DE;
Inverseratio = 1/(EF/DE);
x = BarsSince( startCond );

CD = DE * Inverseratio;
BC = CD * Inverseratio;
AB = BC * Inverseratio;
FG = EF * Ratio;
GH = FG * Ratio;
HI = GH * Ratio;
IJ = HI * Ratio;

FH = Sqrt(Power(FG,2)+Power(GH,2));

If ( x=Int(FH+FG+GH) Or x=Int(FH) Or x=Int(GH) Or x=Int(HI) or x=Int(IJ) Or x=Int
(DE+EF+CD) Or x=Int(GH+HI+IJ) or x=Int(CD+DE+EF+FG+GH+HI) or x=Int(EF+FG+GH) Or
x=Int(CD+DE+EF+FG+GH) Or x=Int(CD+DE+EF+FG+GH+HI) Or x=Int(GH+IJ+CD+AB+EF )
Or x=Int(FH+FG+GH) Or x=Int(AB+BC+CD+DE) Or x=Int(AB+BC+CD+DE+GH) Or x=Int
(FG+GH) Or x=Int(GH+HI) or x=Int(FG+BC+CD) Or x=Int(FG+BC+CD+DE) or x=Int(CD+BC)
Or x=Int(DE+BC) or x=Int(Sqrt(Power(CD,2)+Power(DE,2))+CD+DE) Or x=Int(Sqrt(Power
(EF,2)+Power(FG,2))+EF+FG) ) Then
    DrawSymbol( Close, "Spiral", SymbolVerticalLine, 1, Black, Black );

// *** Copyright tradesignal GmbH ***
// *** www.tradesignal.com ***

***** Source Code for the Count Down Indicator*****
Meta:
    Weblink("http://www.tradesignalonline.com/lexicon/view.aspx?id=17169"),
    Synopsis("Based on the article 'TD Sequential And Ermanometry For
Intraday Traders' by Andrew Coles from the 09/2011 issue of Stocks and
Commodities."),
    ShortCode("CD"),
    Subchart( False );
```



FIGURE 10: TRADESIGNAL, COUNTDOWN INDICATOR.
 This sample Tradesignal Online chart shows the
 countdown indicator on a daily chart of the German bund
 future.

—Henning Blumenthal

Tradesignal GmbH

support@tradesignalonline.com

www.TradesignalOnline.com, www.Tradesignal.com

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CHARTSY: TD SEQUENTIAL, ERMANOMETRY, LUCAS SERIES, FIBONACCI SERIES

For Windows + Mac + Linux

This Traders' Tip is based on Andrew Coles' articles in the August 2011 issue ("About Fibonacci And Lucas: Automated Techniques For Intraday Traders") and this issue ("TD Sequential And Ermanometry For Intraday Traders").

The Lucas series overlay and Fibonacci series overlay described in Coles' August 2011 article and the TD Sequential Setup overlay and Ermanometry overlay described in Coles' article in this issue are all available as overlay plugins in Chartsy. To install the overlays, go to the Tools → Plugins → Available plugins menu, check the desired indicator, and click Install.

You can find the Java source code for the overlays at the Chartsy website. Sample charts, and the corresponding Chartsy property panels are shown in Figures 11–14.

To download Chartsy, discuss these tools, and help us develop other tools, please visit our forum at www.chartsy.org.



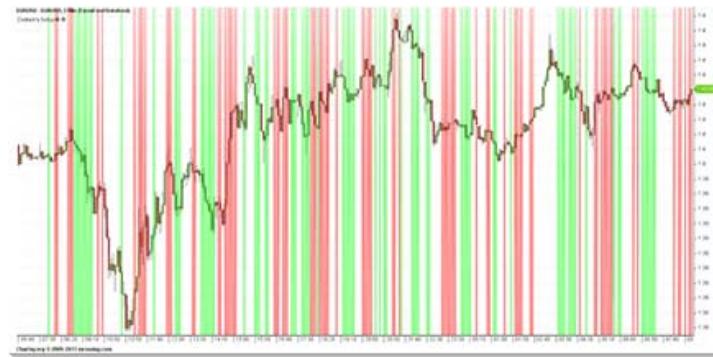


FIGURE 11: CHARTSY, TD SEQUENTIAL CHART OVERLAY



FIGURE 12: CHARTSY, ERMANOMETRY CHART OVERLAY

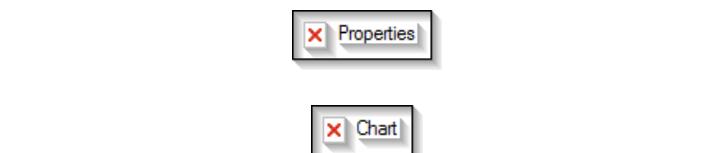


FIGURE 13: CHARTSY, FIBONACCI SERIES CHART OVERLAY



FIGURE 14: CHARTSY, LUCAS SERIES CHART OVERLAY

—Larry Swing
 (281) 968-2718, FVD@mrswing.com
 Yahoo & Skype ID: larry.swing
www.mrswing.com

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TRADE NAVIGATOR: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

You can recreate the indicators discussed in “**TD Sequential And Ermanometry For Intraday Traders**” by Andrew Coles in this issue using Trade Navigator. (See Figure 15 for an example of setting up a function by inputting the formula.)

Here is how to create the custom indicators and add them to any chart in Trade Navigator. We will then show how to use the custom indicators to create a template that can be easily applied to any chart.

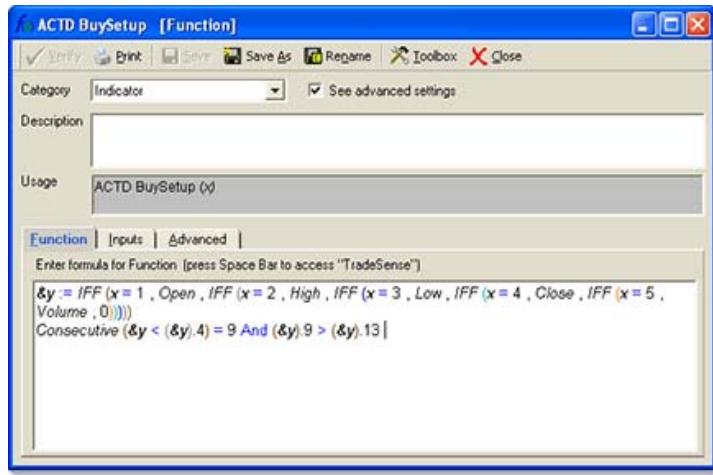


FIGURE 15: TRADE NAVIGATOR, ACTD BUY SETUP.
 Here is how to set up a function in Trade Navigator.

The TradeSense code to recreate the TD Sequential And Ermanometry indicators is as follows:

First, open the Trader's Toolbox, click on the Functions tab, and click the New button.

ACTD BuySetup

Type in the following code:

```
&y := IFF (x = 1 , Open , IFF (x = 2 , High , IFF (x = 3 , Low , IFF (x = 4 , Close , IFF (x = 5 , Volume , 0))))  
Consecutive (&y < (&y).4) = 9 And (&y).9 > (&y).13
```

Click the Verify button. When you verify or save the function, you will get an Add Inputs message. Click the Add button and set the Input values:

x = 4

Click on the Save button, type a name for your new function and click OK.

ACTD SellSetup

Type in the following code:

```
&y := IFF (x = 1 , Open , IFF (x = 2 , High , IFF (x = 3 , Low , IFF (x = 4 , Close , IFF (x = 5 , Volume , 0))))  
Consecutive (&y > (&y).4) = 9 And (&y).9 < (&y).13
```

Click the Verify button. When you verify or save the function, you will get an Add Inputs message. Click the Add button and set the Input values:

$$x = 4$$

Click on the Save button, type a name for your new function and click OK.

ACTD Seq S

Type in the following code:

IFF (ACTD BuySetup (4) Or ACTD SellSetup (4) , 1 , 0)

Click on the Save button, type a name for your new function and click OK.

Ermanometry

Type in the following code:

Click the Verify button. When you verify or save the function, you will get an Add Inputs message. Click the Add button and set the Input values:

```
wavelength1 = 50
wavelength2 = 25
startdate = 20090526
```

Click on the Save button, type a name for your new function and click OK.

Creating the chart template

On a daily chart, go to the “Add to chart” window by clicking on the chart and typing “A” on the keyboard.

Click on the Indicators tab, find the **ACTD Seq S** indicator in the list and either doubleclick on it or highlight the name and click the Add button.

Repeat these steps to add the Ermanometry indicator.

On the chart, click on the **Ermanometry** label and drag it into the price pane. Click and drag the **ACTD Seq S** label

into the price pane.

Click on the chart and type the letter "E" to bring up the Chart Settings window. Change the indicator colors and or settings to how you want them displayed.

When you have them the way you want to see them, click OK.

Click on the Templates button on the toolbar at the top. Select <Manage chart templates>. Click the New button, type a name for the template and click OK.

You now have a template that you can apply to any chart by going to the Templates button in the toolbar and selecting the template from the list.

Genesis Financial Technologies has also provided a library named "TD Sequential And Ermanometry" that includes a template named "S&C Sept 2011 Andrew Coles" with the custom indicators discussed in Coles' article. You can download a special file named "SC201109," downloadable through Trade Navigator, to get this library.

—Michael Herman
Genesis Financial Technologies
www.TradeNavigator.com

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VT TRADER: TD SEQUENTIAL SETUP AND ERMANOMETRY INDICATORS

Our Traders' Tip this month is based on "[TD Sequential And Ermanometry For Intraday Traders](#)" by Andrew Coles in this issue. In this second part of the series, Cole discusses Thomas DeMark's TD Sequential Setup technique (the momentum component of the TD Sequential method used to define price ranges) as well as William Erman's Ermanometry. Coles describes how these market timing techniques can be mechanized for intraday traders.

We'll be offering the TD Sequential Setup and Ermanometry indicators for download in our VT client forums at <http://forum.vtsystems.com>, along with hundreds of other pre-coded and free indicators and trading systems.

The VT Trader instructions for setting up these indicators are shown below.

TD SEQUENTIAL SETUP

1. VT Trader's Ribbon→Technical Analysis menu→Indicators group→Indicators Builder→[New] button
2. In the General tab, type the following text into each corresponding text box:

Name: TASC - 09/2011 - TD Sequential Setup
Function Name Alias: tasc_tdsequentialsetup
Label Mask: TASC - 09/2011 - TD Sequential Setup (%price%)
Placement: New Frame
Data Inspection Alias: TD Sequential Setup
3. In the Input Variable(s) tab, create the following variables:

[New] button...
Name: price
Display Name: Price
Type: price
Default: close
4. In the Output Variable(s) tab, create the following variables:

[New] button...
Var Name: BuySetup
Name: (Buy Setup)
Line Color: blue
Line Width: slightly thicker
Line Type: histogram

[New] button...
Var Name: SellSetup
Name: (Sell Setup)
Line Color: red
Line Width: slightly thicker
Line Type: histogram

5. In the Horizontal Line tab, create the following horizontal lines:

[New] button...
Value: 0
Line Color: black
Line Width: thin
Line Type: dashed

6. In the Formula tab, copy and paste the following formula:

{Provided By: Capital Market Services, LLC & Visual Trading Systems, LLC}
{Copyright: 2011}
{Description: TASC, September 2011 - "TD Sequential and Ermanometry
for Intraday Traders" by Andrew Coles, PhD}
{File: tasc_tdsequentialsetup.vtscr - Version 1.0}

BuySetup:= Sum(price<Ref(price,-4),9)=9 AND Ref(price,-9)>Ref(price,-13);

SellSetup:= Sum(price>Ref(price,-4),9)=9 AND Ref(price,-9)<Ref(price,-13);

7. Click the "Save" icon in the toolbar to finish building the TD Sequential Setup indicator.

To attach the indicator to a chart click the right mouse button within the chart window and then select "Add Indicator" → "TASC - 09/2011 - TD Sequential Setup" from the indicator list.

ERMANOMETRY

1. VT Trader's Ribbon→Technical Analysis menu→Indicators group→Indicators Builder→[New] button
2. In the General tab, type the following text into each corresponding text box:

Name: TASC - 09/2011 - Ermanometry
Function Name Alias: tasc_ermanometry
Label Mask:
TASC - 09/2011 - Ermanometry
(Start M/D/Y H:M: %sm%/%sd%/%sy% %sh%:%se%)
Data Inspection Alias: Ermanometry

3. In the Input Variable(s) tab, create the following variables:

```
[New] button...
Name: sm
Display Name: Starting Month
Type: integer (with bounds)
Default: 1
Min Bounds: 1
Max Bounds: 12

[New] button...
Name: sd
Display Name: Starting Day of Month
Type: integer (with bounds)
Default: 1
Min Bounds: 1
Max Bounds: 31

[New] button...
Name: sy
Display Name: Starting Year
Type: integer (with bounds)
Default: 2011
Min Bounds: 1980
Max Bounds: 2100

[New] button...
Name: sh
Display Name: Hour
Type: integer (with bounds)
Default: 0
Min Bounds: 0
Max Bounds: 23

[New] button...
Name: se
Display Name: Minute
Type: integer (with bounds)
Default: 0
Min Bounds: 0
Max Bounds: 59

[New] button...
Name: EF
Display Name: Seed Segment EF (first wave)
Type: integer (with bounds)
Default: 10
Min Bounds: 1
Max Bounds: 9999

[New] button...
Name: DE
Display Name: Seed Segment DE (2nd wave)
Type: integer (with bounds)
Default: 10
Min Bounds: 1
Max Bounds: 9999

[New] button...
Name: erman
Display Name: Show Erman Series?
Type: enumeration
Default: Yes (* To set up list: click [...] button -> click [New] Button ->
type "No" -> click [New] button -> type "Yes" -> click [OK] button)
```

4. In the Output Variable(s) tab, create the following variables:

[New] button...

Var Name: ErmanSeries

Name: (Erman Series)

Line Color: light green

Line Width: slightly thicker

Line Type: histogram

[New] button...

Var Name: ColesSeries

Name: (Coles Series)

Line Color: light blue

Line Width: slightly thicker

Line Type: histogram

5. In the Horizontal Line tab, create the following horizontal lines:

[New] button...

Value: 0

Line Color: black

Line Width: thin

Line Type: dashed

6. In the Formula tab, copy and paste the following formula:

```

{Provided By: Capital Market Services, LLC & Visual Trading Systems, LLC}
{Copyright: 2011}
{Description: TASC, September 2011 - "TD Sequential and Ermanometry
for Intraday Traders" by Andrew Coles, PhD}
{File: tasc_ermanometry.vtscri - Version 1.0}

start:= sd=DayOfMonth() AND sm=Month() AND sy=Year() AND sh=Hour() AND se=Minute
();

Ratio:= EF/DE;

Inverseratio:= 1/(EF/DE);

x:= BarsSince(start);

CD:= DE*Inverseratio;
BC:= CD*Inverseratio;
AB:= BC*Inverseratio;
FG:= EF*Ratio;
GH:= FG*Ratio;
HI:= GH*Ratio;
IJ:= HI*Ratio;
FH:= Sqrt(Power(FG,2)+Power(GH,2));

ErmanSeries:= erman=1 AND (
    x=Int(FH) OR
    x=Int(GH) OR
    x=Int(HI) OR
    x=Int(IJ) OR
    x=Int(DE+EF+CD) OR
    x=Int(GH+HI+IJ) OR
    x=Int(CD+DE+EF+FG+GH+HI) OR
    x=Int(EF+FG+GH) OR
    x=Int(CD+DE+EF+FG+GH) OR
    x=Int(CD+DE+EF+FG+GH+HI) OR
    x=Int(GH+IJ+CD+AB+EF)
);

ColesSeries:= coles=1 AND (
    x=Int(FH+FG+GH) OR
    x=Int(AB+BC+CD+DE) OR
    x=Int(AB+BC+CD+DE+GH) OR
    x=Int(FG+GH) OR
    x=Int(GH+HI) OR
    x=Int(FG+BC+CD) OR
    x=Int(FG+BC+CD+DE) OR
    x=Int(CD+BC) OR
    x=Int(DE+BC) OR
    x=Int(Sqrt(Power(CD,2)+Power(DE,2))+CD+DE) OR
    x=Int(Sqrt(Power(EF,2)+Power(FG,2))+EF+FG)
);

```

7. Click the "Save" icon in the toolbar to finish building the Ermanometry indicator.

To attach the indicator to a chart, click the right mouse button within the chart window and then select "Add Indicator" → "TASC - 09/2011 - Ermanometry" from the indicator list.

Sample charts of the TD Sequential Setup and Ermanometry indicator are shown in Figures 16 and 17.



FIGURE 16: VT TRADER, TD SEQUENTIAL. Here is the TD Sequential setup indicator attached to a EUR/USD one-hour candle chart.



FIGURE 17: VT TRADER, ERMANOMETRY. Here is the Ermanometry indicator attached to a EUR/USD one-hour candle chart.

To learn more about VT Trader, visit www.vtsystems.com.

Risk disclaimer: Forex trading involves a substantial risk of loss and may not be suitable for all investors.

—Chris Skidmore
Visual Trading Systems, LLC
212 871-1747, info@vtsystems.com
www.vtsystems.com

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MICROSOFT EXCEL: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

This month, author Andrew Coles continues his exploration of time series-based market studies with Ermanometry-based intervals and TD Sequential Setups in an article titled "[TD Sequential And Ermanometry For Intraday Traders](#)" in this issue.

In this Excel example, I have once again used data for TLT as I did for the August 2011 Traders' Tip so we can compare the results. This example is coded to use the closing price, but provisions have been made to allow you to base the calculations on open, high, low, or close, similar to the MetaStock code given in Coles' article.

In Excel terms, the only real difference between intraday, daily, weekly, or longer time frames is how one goes about specifying the bars that define segments DE and EF for the Erman study. The TD Sequential Setups do not require a start date.

In Figure 18, the Erman left, middle, and right plots mark the ends of the ratio defining segments DE and EF chosen for this example. The spreadsheet is coded to start the Ermanometry counts and plots at the Erman right bar.

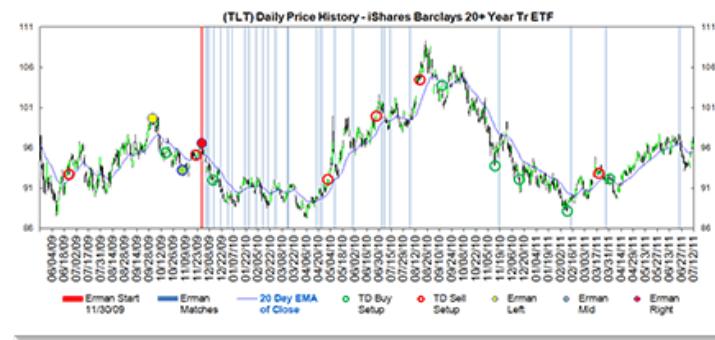


FIGURE 18: EXCEL, TD SEQUENTIAL AND ERMANOMETRY. The Erman left, middle, and right plots mark the ends of the ratio defining segments DE and EF chosen for this example. The spreadsheet is coded to start the Ermanometry counts and plots at the Erman right bar.

If you have access to historical intraday data, the notes tab outlines the simple cell format changes you would need to make to use this workbook with intraday data.

This workbook incorporates the chart data windowing ability I introduced in previous Excel Traders' Tips. To take advantage of this feature you will need to enable VBA macro content when prompted.

Even if you choose not to enable VBA macro content, you may view the macros after you open the spreadsheet by using Alt-F11 to open the VBA integrated development environment.

[Here is the link to download the "TDSequentialAndErmanometry.xls" spreadsheet file.](#)

—Ron McAllister
EXCEL and VBA Programmer
rpmac_xltt@sprynet.com

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METASTOCK: TD SEQUENTIAL AND ERMANOMETRY FOR INTRADAY TRADERS — COLES ARTICLE CODE

A TD Sequential buy Setup adheres to the following two conditions:

1. A bearish price flip whereby price must close higher than the close four bars earlier, followed by a close less than the close four bars earlier
2. Nine consecutive closes, each one less than the corresponding close four bars earlier (where the bar on which the bearish price flip occurs qualifies as bar of the buy Setup).

For a sell Setup, these conditions are reversed. These two conditions can be programmed into MetaStock and the result is a mechanized version of the Setup component of the TD Sequential.

METASTOCK CODE FOR INTRADAY APPLICATION OF THE TD SETUP

```

x:=Input("Price Field, 1=O,2=H,3=L,4=C,5=V",1,5,4);
y:=If(x=1,O,If(x=2,H,If(x=3,L,If(x=4,L,If(x=5,V,0)))));

{BuySetup}
Sum(y<Ref(y,-4),9)=9 AND {initialization} Ref(y,-9)>Ref(y,-13);

{SellSetup}
Sum(y>Ref(y,-4),9)=9 AND {initialization} Ref(y,-9)<Ref(y,-13);

```

METASTOCK CODE FOR INTRADAY APPLICATION OF ERMANOMETRY

```

sm:=Input("starting month",1,12,1);
sd:=Input("starting day of month",1,31,1);
sh:=Input("hour", 1,24,1);
se:=Input("minute",0,60,0);

start:= sd=DayOfMonth() AND sm=Month() AND 2010 AND sh=Hour() AND se=Minute();

EF:=Input("seed segment EF (first wave)",1,900,10) {first leg or movement};
DE:=Input("seed segment DE (second wave)",1,900,10) {second leg or movement};

Ratio:=EF/DE;

Inverseratio:= 1/(EF/DE);

x:=BarsSince(start);

CD:=DE*Inverseratio;
BC:=CD*Inverseratio;
AB:=BC*Inverseratio;
FG:= EF*Ratio;
GH:=FG*Ratio;
HI:=GH*Ratio;
IJ:=HI*Ratio;

FH:= Sqrt(Power(FG,2)+Power(GH,2));

{start of calculations}

If(x=Int(FH),1,0); {Erman}
If(x=Int(GH),1,0); {Erman}
If(x=Int(HI),1,0); {Erman}
If(x=Int(IJ),1,0); {Erman}
If(x=Int(DE+EF+CD),1,0); {Erman}
If(x=Int(GH+HI+IJ),1,0); {Erman}
If(x=Int(CD+DE+EF+FG+GH+HI),1,0); {Erman}
If(x=Int(EF+FG+GH),1,0); {Erman}
If(x=Int(CD+DE+EF+FG+GH),1,0); {Erman}
If(x=Int(CD+DE+EF+FG+GH+HI),1,0); {Erman}
If(x=Int(GH+IJ+CD+AB+EF),1,0); {Erman}
FH:= Sqrt(Power(FG,2)+Power(GH,2));

If(x=Int(FH+FG+GH),1,0); {Coles}
If(x=Int(AB+BC+CD+DE),1,0); {Coles}
If(x=Int(AB+BC+CD+DE+GH),1,0); {Coles}
If(x=Int(FG+GH),1,0); {Coles}
If(x=Int(GH+HI),1,0); {Coles}
If(x=Int(FG+BC+CD),1,0); {Coles}
If(x=Int(FG+BC+CD+DE),1,0); {Coles}
If(x=Int(CD+BC),1,0); {Coles}
If(x=Int(DE+BC),1,0); {Coles}
If(x=Int(Sqrt(Power(CD,2)+Power(DE,2))+CD+DE),1,0); {Coles}
If(x=Int(Sqrt(Power(EF,2)+Power(FG,2))+EF+FG),1,0); {Coles}

```

—Andrew Coleswww.midasmarketanalysis.com**BACK TO LIST**



BLOOMBERG: INTRADAY APPLICATION OF TD SEQUENTIAL AND ERMANOMETRY

In his article in this issue, “[TD Sequential And Ermanometry For Intraday Traders](#),” author Andrew Coles demonstrates additional techniques following his article last month, this time focused on intraday trading using sequences of spikes on the chart to represent the development of a linear rectangular spiral, as well as the TD Sequential developed by Tom DeMark.

The TD Sequential indicator is available as part of the DeMark suite of indicators offered as a third-party subscription service accessible through DEMA<GO>.

The spikes on the 60-minute Citigroup chart shown in Figure 19 formed by the Ermanometry study, as described in Coles’s article, are based on the two significant moves in the beginning of June 2010. The downward slope consists of 90 bars, and the move back up has a count of 40 bars. Using these inputs, the spikes are created and, as is shown, line up with a number of meaningful times in the market. The first three green circles all line up with points where the market was not following the overall uptrend that ran from mid-June until reversing in early/mid July. The furthest spike on the chart lines up (within three bars, as mentioned in Coles’s article) with what appears to be the end of the downmove.



FIGURE 19: BLOOMBERG, TD SEQENTIAL AND ERMANOMETRY. This 30-minute chart of Citigroup shows a down move from June 1 through June 8, 2011, consisting of 90 bars. The move up from the low on June 8 hit a swing high on June 13 with a count of 40 bars. Using these numbers with Ermanometry, as described in this month’s article by Andrew Coles, produces spikes on the chart often corresponding with prominent points of trend pausing and reversal.

As with the Fibonacci and Lucas sequences discussed in last month’s Bloomberg Traders’ Tip, this indicator was written to paint the bar that is clicked on as the beginning point for the count. Using the CS.NET framework within the STDY<GO> function on the Bloomberg Terminal, C# or Visual Basic code can be written to display the spikes resulting from Ermanometry sequences, as described in Coles’s article in this issue.

The C# code for this indicator is shown below. All Bloomberg code contributions to Traders’ Tips can also be found in the sample files provided with regular SDK updates, and the studies will be included in the Bloomberg global study list.

```
using System;
using System.Collections.Generic;
using System.Text;
using System.Drawing;
using Bloomberg.Study.API;
using Bloomberg.Study.CoreAPI;
using Bloomberg.Study.Util;
using Bloomberg.Study.TA;
using Bloomberg.Math;

namespace Ermanometry
{

    public partial class Ermanometry
    {
        // DateTime to hold the starting point for the sequence
        DateTime startPoint;

        public StudyIntegerProperty DE = new StudyIntegerProperty(10, 40, 900);
        public StudyIntegerProperty EF = new StudyIntegerProperty(10, 48, 900);

        private void Initialize()
        {
            // Create Lines to Output at Ermonetric Counts
            Output.Add("Ermanometry", new TimeSeries());
            StudyLine ErmanometryLine = new StudyLine("Ermanometry", Color.Red);
            ErmanometryLine.Style = LineStyle.Solid;
            ErmanometryLine.Width = 1;
            ParentPanel.Visuals.Add("ErmanometricCount", ErmanometryLine);

            // Create Paint Bar to mark start point of Ermonetric Count
            Output.Add("PaintBar", new TimeSeries());
            StudySignal paintBar = new StudySignal("PaintBar");
            paintBar.Marker = new PaintBar(Color.Cyan);
            ParentPanel.Visuals.Add("PaintBar", paintBar);

            // Register callback function for handling chart click to set a new
            start point
            Notifications.Add("Ermanometry Start", new StudyIndexNotification
            (ermStartCallback));
        }

        public override void Calculate()
        {
            // Find the min and max value of the chart data for plotting the
            needle projections
            double minValue = Input.Low.Minimum;
            double maxValue = Input.High.Maximum;

            int count = Input.Close.Count;
            TimeSeries paintBarData = new TimeSeries(count);
            TimeSeries ermanometricData = new TimeSeries(count, minValue);

            // This section will tie the color of the Paint Bar (clicked bar) to
            the color of the
            // Ermanometry Lines
            StudyLine line = ParentPanel.Visuals["ErmanometricCount"] as
            StudyLine;
            StudySignal signal = ParentPanel.Visuals["PaintBar"] as StudySignal;
            PaintBar paintBar = signal.Marker as PaintBar;
            paintBar.Color = line.Color;
        }
    }
}
```

—Bill Sindel
Bloomberg, LP
wsindel@bloomberg.net

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The computer code published on this webpage reflects the efforts of third parties to code the indicators discussed in the following article, published in the September 2011 issue of Technical Analysis of STOCKS & COMMODITIES: Andrew Coles, 'TD Sequential and Ermanometry for Intraday Traders.' The code published on this webpage or in the September 2011 issue of STOCKS & COMMODITIES is not sponsored or endorsed by, nor affiliated with, Thomas DeMark or his company, Market Studies LLC, and it should not be confused with any software that he or his company may offer, or license others to offer, for purchase or licensing.

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Exhibit D

Exhibit D

TECHNICAL ANALYSIS OF **STOCKS & COMMODITIES**
The Traders' Magazine™

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1 206 938-0570 Fax 1 206 938-1307
circ@traders.com

Subscription Manager Sean M. Moore**Subscription Sales** Karen Adams-Thomas, Stacy Bagnall, Carmen Hale**WEBSITE**

http://www.traders.com

Staff members may be emailed through the Internet using first initial plus last name plus @traders.com

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OPENING POSITION

As I write this, I am waiting for the White House and Congress to strike a deal to raise the US debt ceiling. The outcome could worsen the current economic situation not just in the US but globally as well. Think of it: Most of the world's advanced nations have racked up enormous debt. At least the US still has the highest ratings from credit rating agencies — until now, anyway — as it too risks a downgrade from its AAA rating. That's a *big* deal. Could the world's economic powerhouse really crash? It's inconceivable to consider that such a thing might happen. But if it really did, we would see continued weakening of the US dollar, rising interest rates, increasing inflation, and a deep global recession. The clock is ticking, and we are nervously awaiting the outcome. Their decision will affect us all.

We don't need another financial chaos. If that happens, who is going to jump in and rescue the world? The government isn't going to be able to pump in any kind of stimulus, they can't lower interest rates any further, nor will they be in a position to provide bailouts. So let's keep our fingers crossed and hope they reach an agreement for raising the debt ceiling and improving the long-term fiscal outlook.



Meanwhile, how are the markets reacting to this? The Standard & Poor's 500 as well as the other broader indexes are close to the highs they reached in May 2011. So in light of what appears to be a fundamentally strong market, it becomes difficult to convince others that the markets look like they will hit a peak and then crash. It looks like we are in another market bubble, and I'm keeping an eye out for the first sign of that bubble bursting. It may not happen till next year, but when it does, it could be a lot worse, even if an agreement is reached for the US to reduce its budget deficit. I'm actually keeping up with the fundamentals, which right now are very negative. There's Greece's debt burden, doubts about China's economic strength, explosions in Oslo...

The remainder of 2011 will present many challenges. The markets are extremely unstable. Expect some big, bold moves.

Jayanthi Gopalakrishnan

**Jayanthi Gopalakrishnan,
Editor**